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# Hymenoptera Orientalia, or Contributions to a knowledge of the Hymenoptera of the Oriental Zoological Region. Part VII.

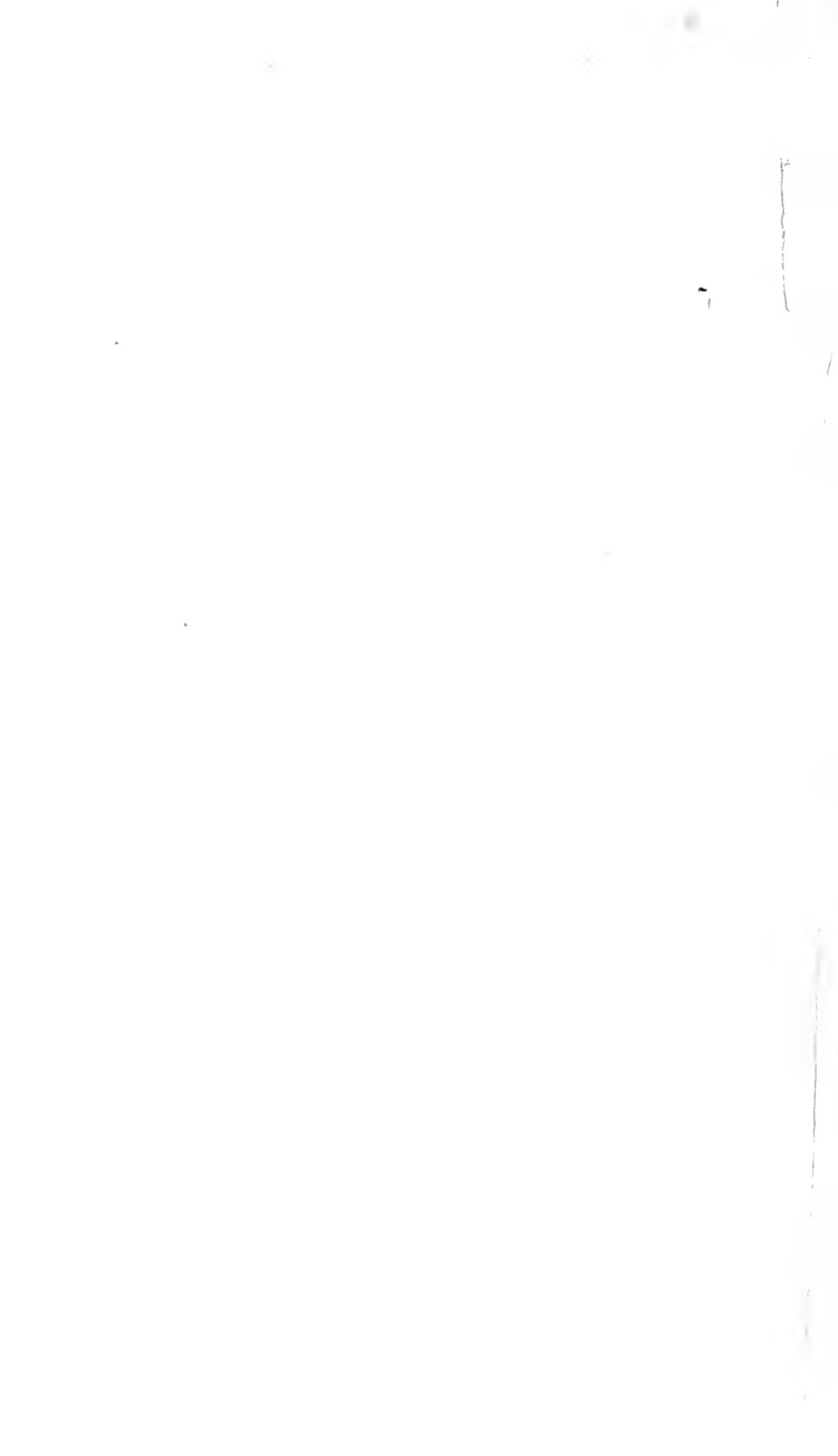
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**XI. Hymenoptera Orientalia, or Contributions to a knowledge of the Hymenoptera of the Oriental Zoological Region. Part VII.**

By PETER CAMERON.

[Communicated by J. Cosmo Melvill, M.A., F.L.S.]

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Since the publication of Part VI. of this series of papers on the *Hymenoptera* of the Oriental Zoological Region, there has appeared Col. C. T. Bingham's "Fauna of British India, *Hymenoptera*," Vol. I., which deals with the Aculeate Section of the Order, except the Ants. To facilitate reference I have, in this paper, followed Col. Bingham's arrangement, giving indications of the positions my new species will occupy in the system adopted by him. Further, I have pointed out certain omissions and corrections in his work.

It is necessary to say here that Col. Bingham's book only refers to British India, Burma and Ceylon, whereas the scope of my papers includes the Oriental Zoological Region as defined by Mr. A. R. Wallace—a very much wider area.

MUTILLIDÆ.

MUTILLA VISRARA, *sp. nov.*

Long. 8 mm.

Hab. Trincomali, Ceylon (*Yerbury*).

Allied to *M. niveosignata*, but differs in the basal segment not being "almost bare" at the base, but covered

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with long black hair, although not so thickly as at the apex, where it is densely covered with long fulvous hair, in the second segment beneath not having three longitudinal keels, in the ventral segments and legs being distinctly piceous, and in being two mm. smaller.

Head slightly wider, but not quite so long as the thorax; rounded in front, but not quite so much so behind, very coarsely rugosely punctured, the punctures longest and deepest in the centre of the front and vertex; behind the eyes it is developed to a greater extent than their greatest length; the eyes are small. Front and vertex covered with long black hairs; above the antennæ more thickly with silvery hair; on the clypeus it is equally long and pale golden. Antennal tubercles piceous at the apex, shining. Clypeus reddish, the apex bordered with black. Mandibles broadly red in the middle. Antennæ longer than the head and thorax united; distinctly tapering towards the apex; the scape shining, thickly covered with long silvery hair; piceous at the apex; the flagellum bare of hair except at the base, distinctly pruinose towards the apex; black, the apical joints rufous beneath; the third joint about one-third longer than the fourth; thorax quadrangular, scarcely widened towards the apex; the mesonotum, with a semicircular space on the top of the median segment, reddish, coarsely punctured, the punctures large and deep; the pronotum bearing long, blackish hairs; the mesonotum with depressed, pale golden, shorter hairs; the top of the median segment rounded, and bearing a row of large, deep punctures; the rest of it oblique; the sides with a row of large areae; the centre has a blistered appearance and an indistinct keel down its centre; it is sparsely covered with long blackish hairs. Propleuræ reticulated; the metapleuræ also reticulated, but with the reticulations much larger and deeper; the mesopleuræ smooth, the lower part densely covered with long silvery

hair; over the middle coxae it is rufous. Legs black; the anterior coxae and femora rufous; the other femora, tibiae and tarsi more or less piceous; the femora more sparsely, the tibiae and tarsi much more thickly covered with long silvery hair; the tibial spines thick, testaceous; the calcaria white. Abdomen as long as the head and thorax united; the basal segment irregularly reticulated; the base covered, but not thickly, with long, black hair; the apex fringed with long, fulvous, golden hair, which extends on to the base of the second segment; the second segment coarsely irregularly reticulated, most strongly at the sides, thickly covered with long, black hair; in its centre, in front of the middle, are two oval marks of silvery pubescence; the other segments are covered with long, black pubescence; on the third, are two marks of silvery pubescence, but wider and shorter than those on the second; the apical segments are slightly fringed with silvery hairs at their apices; the pygidial area smooth, shining, impunctate; covered thickly at the sides with long, black and a few silvery hairs. The first and second ventral segments piceous; the basal obliquely triangularly raised in the middle; the basal part depressed before the apex; the second segment broadly depressed in the middle at the base; its apical half bearing large, deep, irregular punctures; sparsely covered with long, white hairs; the other segments closely punctured at the apices, thickly covered with long, silvery hair. The apices of the third and fourth ventral segments are obscure testaceous in the middle.

MUTILLA ELTOLA, *sp. nov.*

Long. fere 7 mm.

*Hab.* Trincomali, Ceylon (*Yerbury*).

A species very similar in form and markings to *M. rothneyi* Cam., but may be known from it by the median segment not having "a single central spine posteriorly."

Head large, subquadrate, very slightly narrowed gradually behind the eyes; black; the vertex broadly in the middle, and the front broadly, in the centre to the middle of the eyes, red, sparsely covered with long, fuscous, intermixed with shorter silvery, hair; the front and vertex strongly and distinctly longitudinally striolated, the striæ running into coarse punctures over the antennæ; the striæ behind the eyes stout, sharp, slightly oblique, and not extending below the level of the eyes; the antennal tubercles very smooth, rufo-piceous. Oral region piceous-red; the clypeus in the middle incised, the sides of the incision forming two stout projecting teeth. Mandibles ferruginous; the teeth black; except at the apex, sparsely covered with long, pale golden hair; thorax at the base very slightly narrower and not very much longer than the head, of nearly equal width throughout; the mesonotum, except at the base and at the sides, rufous, the black on the base being broader than on the sides, very coarsely longitudinally reticulated, the reticulations becoming wider and larger towards the apex; the median segment with an oblique slope; reticulated, the reticulations much larger than on the mesonotum. The sides of the mesonotum above with projecting teeth; those at the base indistinct; the central very large, straight, sharp at the apex; that behind it blunt, curved, longer; the teeth on the median segment finer, curved, five in number; the central being the longest. Pleuræ not excavated, smooth, shining, impunctate; the propleuræ at the apex piceous; the base of the meso- and the meta-pleuræ thickly covered with longish, silvery pubescence. Antennæ longish, distinctly tapering towards the apex; the under side of the scape of the second, and of the base of the third joint, rufous; the scape punctured, thickly covered with longish silvery hairs; the flagellum thickly covered with a silvery down; the third joint twice the length of the fourth.

Legs black, thickly covered with longish, silvery hair; the tarsi towards the apex more or less rufous; the calcaria white. Abdomen as long as the head and thorax united, black; a silvery spot on the apex of the basal segment at the apex; a large, round, central and a smaller, more elongate mark on the side of the second segment, and the centre of the fourth and fifth segments broadly in the centre, covered with silvery pubescence; the basal segments punctured, sparsely covered with long black hairs; the pygidium shining, covered with long, black hairs; the centre slightly raised, impunctate; the rest punctured, the punctures large, moderately deep and clearly separated. The basal ventral segment testaceous; the apical three-fourths keeled down the middle; the keel black, dilated at the base, but not much; the second segment with large, shallow punctures, sparsely covered with long, pale hairs; towards the apex the middle projects into a stout, somewhat triangular, tooth; the other segments closely and rather strongly punctured except at the base, and covered with long hair; the hypopygium closely punctured and for the greater part testaceous.

Might be the ♀ of *M. adipus*, but this is a point which can only be settled by direct observation.

#### MUTILLA SIMPLICATA, *sp. nov.*

Long. 10 mm. ♀.

*Hab.* Mahaganay, Ceylon (*Yerbury*).

Belongs to the limited group of *Mutilla kanaræ* Cam. and *M. atomus* André, distinguished by having no spots on the abdomen, having instead broad bands of reddish-fulvous pubescence; the legs red, the antennæ black, reddish at the base. *M. kanaræ* is a larger species than this, its thorax is red: the head covered above with fulvous pubescence; and the second abdominal segment fulvous

at the apex only; *M. atomus* has also the head red, and the antennæ and thorax entirely ferruginous.

Antennæ stout, the basal three joints ferruginous; the scape sparsely covered with longish, pale golden hair; the flagellum with a white, microscopic pile. Head as wide as the thorax; dark ferruginous, darker on the vertex; coarsely punctured, sparsely covered with long, pale golden hair; the third joint of the antennæ as long as the following two united. Thorax rounded in front, not much narrowed behind, the sides straight; above coarsely rugosely reticulated, sparsely covered with long, black hairs. Legs entirely ferruginous-red, covered with long, white hair; the spurs pale; the tibial spines stout, reddish. Abdomen black, velvety; the apex of the basal segment covered rather densely with long, pale golden hair, the second segment broadly at the base, and the third and fourth entirely with golden, depressed pubescence; the other segments black, and bearing black hairs; the pygidial area strongly longitudinally striolated.

The thorax in my only example is somewhat crushed, and I cannot satisfactorily describe its sides; the mesopleuræ appear, however, to be smooth; the median segment coarsely punctured, and sparsely covered with long, white hair.

#### MUTILLA CEDIPUS Cam.

Col. Bingham (*I.c.*, p. 27) gives *Mutilla adipus* Cam. (he calls it *contracta*) as the ♂ of *M. rothneyi* Cam. There is, however, no evidence, except surmise, that this is the case; and, like so many other species, it had better be kept distinct until direct observation shows what its female really is. Col. Bingham states further that it is not really apterous—that its wings have been torn off. There is nothing novel in the fact of there being an apterous male *Mutilla*, for there is more

than one undoubted instance known; and, when such is the case, the form of the thorax in the ♂ approximates to that of the females. Such is certainly the case with *M. adipus*, in which I am not only unable to find any trace of there having been wings, but so far as the hind wings are concerned, I cannot see where they could have been attached. The contracted thorax is well shown in my figure (*Manch. Memoirs*, vol. xli., No. 4, pl. 4, f. 13). A comparison of my figure with that of *M. perfecta* Rad., shows great similarity between these apterous males in structure of the thorax.\*

*Mutilla acidalia* Cam., described (*Manch. Memoirs*, l.c., p. 56) in both sexes by me, is omitted entirely by Bingham.

Col. Bingham also has overlooked my description of both sexes of *Mutilla opulenta* (*Manch. Memoirs*, l.c., p. 57).

#### MUTILLA APICIPENNIS Cam.

This species is not mentioned by Bingham under this name, unless he regards it as identical with *M. pedunculata* Klug (l.c., p. 51). If so, his description of the latter is defective in a very important point, namely, he says nothing about the petiole being serrate, or irregularly armed with teeth beneath, this being one of the most specific features whereby *M. pedunculata* is distinguished from the very closely-allied *M. chlorotica* Grib. I have not at hand Klug's original description, but *M. apicipennis* does not agree with Gribodo's description of *M. pedunculata*, e.g., the second abdominal segment is not coarsely and strongly rugosely punctured, *M. apicipennis* having it only irregularly roughened at the base; in *M.*

\* For details regarding the apterous males, as well as the generic position of *Mutilla apicipennis* and its allies, see the work of Kadoszkowski, *Hora Soc. Ent. Ross.*, XIX. 1885, and the more recent paper by M. Ernest André, *Mém. Soc. Zool. France*, 1896, pp. 261-277.

*pedunculata* the epipygium is said to be smooth, longitudinally carinate in the middle; in *M. apicipennis* it is only smooth at the base, the rest closely rugosely punctured and without a trace of a keel (*cf.*, Gribodo, *Ann. Mus. Civ. Genova*, xx., p. 390). *M. pedunculata* is known from Arabia and Berbera. It, with *M. chlorotica* Grib., and perhaps *M. asiatica* Rad., forms the genus or subgenus *Tricholabiodes* Rad.

When I described *M. apicipennis*, I relied (not having Klug's work to consult) on the description of *M. pedunculata* given by Sichel and Radoszkowski in their Monograph of the Old World *Mutillidæ*. Their *M. pedunculata* is assuredly not *M. apicipennis*, but is perhaps *M. chlorotica* Grib. It has not the petiole serrate beneath, nor is any mention made of there being two furrows on the mesonotum. *M. chlorotica* (also from Arabia) differs from *M. apicipennis* in having the abdomen without any black, the petiole without teeth, and all the abdominal segments obliquely punctured. It seems to me therefore clear that *M. pedunculata* Klug must be deleted from the lists of Oriental *Mutillidæ*, unless the example from "Western India" recorded by Bingham, be the true *M. pedunculata*, in which case his description does not fit it.

#### MUTILLA POSTHUMA, *sp. nov.*

Long. 4·5 mm.

*Hab.* Trincomali, Ceylon (*Verbury*).

In the table (*Manchester Memoirs*, Vol. 5 (1892), p. 123-4) this species comes in at "15. Head red, wholly or in part."

16. Abdomen with one spot and one band.

16a. Head and thorax with golden hair; antennæ entirely rufo-testaceous; pygidial area black, not longitudinally striated. Length 7 mm. *M. poonaensis* Cam.

16b. Head and thorax without golden hair; antennæ at the base pallid testaceous, fuscous towards the apex; the pygidial area testaceous, distinctly longitudinally striated. Length 4·5 mm. *M. posthuma*.

The little *M. atomus* André is readily separated from it by the pygidium not being striated. Antennæ stout, thickened towards the apex; pallid-testaceous, infuscated towards the apex, sparsely pilose, the third and fourth joints equal in length. Head, if anything, wider than the thorax; the front and vertex strongly punctured, dark rufo-testaceous; the oral region and the tubercles pallid-testaceous, as is also the base of the mandibles; the tubercles large, shining; behind, the head is developed one-half the length of the eyes. Thorax, with the sides above, straight, slightly and gradually narrowed towards the apex; the mesonotum coarsely punctured; the median segment with a slight oblique slope, rounded at the top. Pleuræ slightly excavated, smooth and shining; the middle with long, white hair. Legs thickly covered with long, white hair; testaceous, the femora darker, the tarsi paler. Abdomen a little longer than the head and thorax; black, with a slight violaceous tinge; the base and apical segments rather thickly covered with long, pale hair; the anal segment rufo-testaceous, strongly longitudinally striolated. Ventral surface black; the basal segment testaceous, with a straight, blunt centre; the other segments fringed thickly with long, white hair.

#### MUTILLA CONSOCIATA, *sp. nov.*

Long. 5 mm. ♀.

*Hab.* Trincomali, Ceylon (*Yerbury*).

Agrees closely with *M. posthuma*; but instead of the apex of the second abdominal segment being entirely covered with silvery pubescence, it has only a square mark of it in the centre, there being also similar marks on the fourth and fifth; the anal segment is black and is only finely, not strongly, punctured, and, at the sides, is thickly covered with longish, stiff, black hairs; the apex of the median segment is more sharply oblique, and not rounded

at the top ; the vertex is not so dark, nor the base of the antennæ so light, in tint. It also resembles *M. regia* Sm., but that is much larger; its abdomen has a very decided bluish tint; its mesonotum has in front a large mark of silvery pubescence, and the median segment has a rounded slope. *M. poonaensis* may easily be known by its thorax being longer and distinctly narrowed towards the apex, the thorax of *M. consociata* being of uniform width.

Head as wide as the thorax ; the front and vertex coarsely punctured, the vertex slightly infuscated ; and with only a few short, black hairs ; the oral region with some long silvery hairs ; the tips of the mandibles black. Antennæ stout, rufous, blackish towards the apex ; the scape with a few large punctures and a few silvery hairs ; the third joint twice the length of the second and one-half the length of the fourth. Thorax short, of uniform width ; the mesonotum strongly punctured, sparsely covered with long, silvery hair ; the median segments with a sharply oblique slope ; reticulated, and bearing long, fuscous hair ; the reticulations are weaker and smaller on the bottom. Pleuræ shining, not excavated ; the middle thickly covered with long, depressed, silvery hair. Legs rufo-testaceous, thickly covered with long, white hair ; the hinder knees infuscated. Abdomen hardly so long as the head and thorax united ; deep black ; an elongated mark of silvery pubescence in the centre of the second segment, a transverse one at its apex, and one in the centre of the fourth and fifth segments ; the anal segment finely longitudinally striated ; the centre in the middle piceous ; the ventral segments thickly covered with long, white, silvery hair.

MUTILLA INDECORA, *sp. nov.* (Pl. 4, fig. 1.)

Long. 4 mm.

Hab. Ceylon, Trincomali (*Yerbury*).

Agrees with *M. serratula* Cam. and *M. veda* Cam. in having the thorax spined and the abdomen with golden markings. From *M. serratula* it may be known by its head being red, not black, by having only a golden mark on the apex of the second abdominal segment, not a complete band, and by the metapleurae being coarsely punctured; *M. veda* is to be known from it by the large belt of golden pubescence on the apex of the second abdominal segment, by the much less strongly punctured metapleurae, and by the apical abdominal segment above being densely covered with golden pubescence.

Head, if anything, wider than the thorax; dark rufous, slightly infuscated on the vertex; strongly and coarsely punctured, thickly covered with long fuscous hair; the space behind the eyes as long as the eyes; the oral region thickly covered with long, white hair. Mandibles rufous, their apices broadly black. Antennæ stout, the flagellum blackish; the scape rufo-testaceous, shining, sparsely covered with longish, white hair, and having some large punctures. Thorax somewhat narrower than the head and about double its length, of nearly equal length throughout, closely rugosely punctured; the median segment with an oblique slope, and punctured all over, the punctures distinctly separated; at the top is one large central tooth and four smaller lateral ones. Pro-, meso- and base of meta-pleuræ shining, impunctate; the rest of the metapleurae strongly punctured, the punctures large and deep. At the apex of the mesopleuræ above is a large tooth; on the sloping part of the metapleurae are six smaller teeth also above. Legs stout, rufo-testaceous, the spurs paler; thickly covered with long, pale, fuscous hair; on the hinder tibiæ are four long, sharp spines. Abdomen broad at the base; closely punctured; on the apex of the first segment is a roundish spot of golden pubescence; on the apex of the second in the middle is a similar mark,

double its size, and narrowed at the base; on the centre of the third is a small patch; and the apical segment is entirely covered with a long, pale golden hair. Ventral segments punctured, closely covered with long, white hair.

MUTILLA ERNESTI, *sp. nov.*

Long. 5 mm.

*Hab.* Trincomali, Ceylon (*Yerbury*).

Belongs to the group of *M. serratula* Cam., except that the head is not black, only dark ferruginous. From *M. veda* and *M. indecora*, it may be known by the darker colour of the head and thorax, by the deeper tint of the abdominal marks, and by the second abdominal segment being distinctly longitudinally striolated.

Head as wide as the thorax; the sides behind the eyes straight, and as long as the eyes; strongly punctured, shining, sparsely covered with long, fuscous hair; the antennal tubercles shining, smooth, piceous at the apex. Oral region piceous; mandibles ferruginous, broadly black at the apex. The scape and basal two joints of the flagellum ferruginous; the flagellum brownish beneath; the third joint is distinctly longer than the fourth. Thorax about twice the length of the head and of about the same width, scarcely narrowed towards the apex; above coarsely rugosely punctured; at the base the sides project into a stout, blunt, triangular tooth, in the middle there is a smaller triangular tooth, and at the top of the median segment on the sides are a few teeth, the lower indistinct. The median segment has a sharp oblique slope, which is for the greater part blackish; the top serrate, the three middle teeth being much the larger. Except the apex of the metapleuræ, which is strongly punctured, the pleurae are shining and impunctate. Abdomen black; the apex of the first segment with a small, the second with

a much larger, semicircular mark of deep orange pubescence, mixed with pale golden hairs ; the second segment longitudinally striolated.

MUTILLA LITIGIOSA, sp. nov.

Long. 8 mm. ♀.

Hab. Trincomali, Ceylon.

In Bingham's table, this species comes in on p. 4—  
“Second abdominal segment with two spots, the spots medial, one above the other.”

The spots golden.

Legs and scape of antennæ red. *M. pulla* André.  
, , , black. *M. litigiosa*.

Antennæ stout, tapering very distinctly towards the apex, the scape sparsely covered with longish white hair ; the flagellum bare, or with a microscopic pile ; the apex of the scape and the base of the flagellum rufous beneath ; the third joint nearly one-half longer than the fourth. Head as wide as the middle of the thorax ; coarsely rugosely punctured ; sparsely covered with long, fuscous hair on the vertex ; on the face and oral region the hairs are paler, silvery white and more numerous ; the base of the mandibles piceous. Thorax rufous, except on the sternum ; rounded at the base and apex, becoming gradually, but not very much, thicker towards the apex ; above coarsely rugosely punctured ; the pleuræ excavated, smooth and shining ; their lower part black, and thickly covered with long, white hair ; the median segment broadly rounded at the top, and with an oblique slope. Legs black ; the tarsi more or less rufous towards the apex ; the femora sparsely, the tibiæ more thickly, covered with white hairs, the tarsi with the hairs thicker and stiffer ; the calcaria pale. Abdomen longer than the head and thorax united ; black ; a fringe of longish,

golden hair on the apex of the first segment; a roundish mark near the base of the second segment in the middle; a semicircular one on the extreme apex; and a broad belt of golden pubescence on the apex of the third; the other segments at the sides with long, pale golden hair; the pygidial area rufous in the centre, strongly and uniformly longitudinally striolated. The basal ventral segment rufous at the sides; the base with two stout curved keels; shining; the central keel stout, straight; the second segment stoutly punctured; the other segments at the base finely transversely striated; their apices closely punctured, as are also their sides; and they are covered sparsely with long, pale hair.

This species has a considerable resemblance to *M. buddha* Cam., but that is longer; its legs are stouter shorter and more thickly haired; the basal abdominal segment is wider compared with the second and more distinctly separated from it, the second segment itself being of equal breadth at base and apex, whereas in *M. litigiosa* the base of the segment is narrower than the apex; and in *M. buddha* the pygidium is not striolated.

#### MUTILLA FALLACIOSA, *sp. nov.*

Long. 7-8 mm.

*Hab.* Trincomali, Ceylon (*Yerbury*).

Similar in form and coloration—black, with the thorax red above, the second abdominal segment with two white round spots, the one behind the other, and the whole of the third segment covered with silvery hair—to *M. constanciae*, but easily separated by the very roughly tuberculated median segment. Is also not unlike *M. litigiosa* described in this paper, but that has the pleuræ red, the head more coarsely and not so thickly punctured, and the base of the thorax above is not black. Also not unlike *M. dives* Cam., but differs in the tuberculated median

segment, in the densely pilose head, and in the median segment not being so sharply oblique.

Head nearly as wide as the thorax; rugosely punctured; rather thickly covered with longish, silvery and more sparsely with longer, fuscous hairs; the antennal tubercles and the basal half of the mandibles above, rufous; rounded at the sides behind, it being there nearly the length of the eyes; the scape of the antennæ covered with long, silvery hair; the flagellum covered with a close, white down; the third joint is a little, but still distinctly, longer than the fourth. Thorax twice the length of the head; black; the meso- and meta-notum red, except the base and sides of the former; the mesonotum coarsely rugosely punctured, sparsely covered with short, depressed, golden hairs; the median segment with a rounded slope, almost oblique towards the apex, where it is black; coarsely reticulated; the base coarsely tuberculated, the tubercles largest in the middle. The sides of the thorax above almost straight, rough; the eyes bearing very long, blackish hairs. The pleuræ above rugosely punctured; the rest smooth and shining; their lower part thickly covered with long, silvery hair. Legs thickly covered with long, silvery hair; the spines on the hinder tibiæ long, sharp. Abdomen as long as the head and thorax united; deep, velvety black; the basal segment thickly covered with silvery pubescence; there is a spot of silvery pubescence on the second segment in the centre; there is a mark, broader than long, a smaller almost square one in the centre, and the whole of the third segment is covered with silvery pubescence; the segments are also sparsely covered with longish, black hair. Pygidial area longitudinally striolated, rufous in the centre. Petiole beneath with a blunt, slightly curved keel; the second segment somewhat thickly at the apex, and the other ventral segments thickly covered with long, silvery hair.

*MUTILLA STULTA, sp. nov.*

Long. 8 mm. ♀.

*Hab.* Trincomali, Ceylon (*Yerbury*).

In Bingham's Table, (*l.c.*, p. 5) this species comes in at "b<sup>1</sup>. Spot silvery white. b<sup>2</sup>. First abdominal segment not ciliated with white hairs. a<sup>3</sup>. Second abdominal segment with a transverse band of white pubescence on its apical margin in addition to the spot," but it is very different from *M. decora* Sm., the representative of this section. With *M. trimaculata* it has no near relationship; but, judging from the descriptions, it must be nearly related to *M. coronata* Bingham. It is not *M. stridula* Rossi, *sec.* Rad.=*coronata* Fab., for that has the first segment "armé de dents et carène," which is not the case here; nor has it the pygidial area "ovale, assez grand, finement strié," nor are the tarsi reddish. It is not the *coronata* of Saussure, *Reise der Novara, Hymen.* p. 106, who quotes his Ceylonese species as doubtfully identical with *M. coronata* Fab. *M. coronata* Sauss. has the pleuræ "omnis excavata et polita, postice ad marginem leviter rugulata," while in the present species, the pro- and meta-pleuræ, are strongly and coarsely punctured.

Head wider than the thorax; black, the tubercles and the middle of the mandibles broadly rufous; coarsely punctured, the punctures large and deep; there is a distinct keel down the middle of the front; thickly covered with long, fuscous hair; the tubercles large, shining, impunctate, a fine keel between them; over them is a moderately thick, curved keel; behind the eyes the head is obliquely narrowed. Antennæ stout, the scape shining, sparsely covered with longish, pale hairs; the flagellum opaque, covered with a white down. Thorax distinctly narrower than the head, narrowed towards the base and apex; the pro- and meso-notum coarsely longitudinally

punctured, sparsely covered with short, black hair; the median segment has the hair much longer, especially at the base; the base is rounded, the apex oblique and has down its centre a keel; reticulated, the reticulations larger at the base; at the apex of the scutellar region is a transverse keel; and, in the centre of the median segment at the top, is a curved scale-like projection. At the apex of the mesothorax and at the base of the median segment is a small, projecting, roundish tubercle. The propleuræ rather coarsely punctured; the mesopleuræ not much excavated; smooth and shining, except over the middle coxæ, where it is punctured; in the middle on the lower half is a black, curved, oblique furrow; the metapleuræ coarsely punctured behind the oblique furrow. Legs black, thickly covered with pale hair; the tibial spines are few and longish; the spurs pale. Abdomen not much longer than the head and thorax united; a mark of white pubescence on the base of the second segment, which is, at the apex, thickly covered with white hair, forming a broad belt; the penultimate segment covered with long, white hair; the pygidial area smooth, shining, impunctate; the second segment is strongly punctured. Petiole beneath more or less piceous, the apical parts bluntly keeled; the apex itself obliquely pointed, the second ventral segment coarsely punctured, sparsely covered with short, white hair; a reddish transverse band before the apex; the third and following segments covered with long, white hair; the apices of the other segments (including the last) strongly punctured.

#### SCOLIIDÆ.

##### TIPHIA FULVOHIRTA, *sp. nov.*

Long. 8 mm. ♂.

Hab. Poona (*Wroughton*).

In Bingham's table (*I.c.*, p. 57) this species comes into the

section: "Wings hyaline or flavo-hyaline:  $b^2$ . Median segment with three longitudinal carinæ;  $\alpha^4$ . Clypeus incised at apex:"

The area on the median segment nearly as broad as long: the metapleuræ with only 8 semi-oblique keels at the top; apex of abdomen not densely covered with fulvous hair.

*T. incisa* Cam.

The area on the median segment distinctly longer than broad: the metapleuræ strongly obliquely striolated all over, with much more than eight keels, the apical abdominal segments densely covered with fulvous hair.

*T. fulvohirta.*

Head shining, rather thickly covered with longish fuscous hair, above the antennæ closely rugose, the front and vertex with large, deep punctures, which are more numerous and closer together near the eyes; the clypeus, except at the apex, closely punctured, thickly covered with long, white hair; the apex in the middle smooth, and shining, and with a wide, distinct incision. Mandibles black, towards the apex broadly rufous: covered with long, white hair; the palpi testaceous. Antennæ stout, the scape strongly punctured, covered with longish, fuscous hair; the flagellum fuscous beneath, almost glabrous. Pronotum in front shining, the base impunctate, the rest of it covered with large, distinctly separated punctures, except a broad impunctate band on the apex; mesonotum with the punctures larger and more widely separated than on the pronotum; the scutellum punctured like the mesonotum, but with the punctures more widely separated; the post-scutellum punctured like the scutellum, but with the punctures smaller. The central area on the median segment with two keels: the space inside them transversely, rugosely punctured, except for a small shining depression at the apex; the inner side of the lateral areae rugose, the outer aciculated; the apex crenulated; the

apex of the segment has an oblique slope and is closely rugosely punctured. The base of the propleuræ articulated longitudinally, the upper part with large, deep punctures; the apex, except at the top, closely longitudinally striated, this part being separated from the rest by a curved furrow; the lower part, under the larger punctures, smooth, impunctate. Mesopleuræ strongly punctured, except immediately under the wings, where there is a small impunctate space, separated from the rest by a deep, wide, curved furrow. Legs thickly covered with long, white hair; the fore knees, tibiæ and tarsi more or less rufous. Wings hyaline, with a decided greyish-fuscous tinge towards the apex; the stigma black, the nervures fuscous. Petiole shining, marked with scattered punctures, the apex, especially in the middle, almost impunctate; the second segment punctured, except in the middle towards the apex; its base obliquely depressed: the third and following segments opaque, closely and strongly punctured, thickly covered with long, pale fulvous hair. The ventral segments punctured, the punctures becoming smaller and more numerous towards the apex; the last segment with an impunctate line down the centre.

The rufous colour on the fore legs is not a specific character in this, or in the allied species, as the amount of it varies considerably. The same remark applies to the quantity of rufous or brownish in the colour of the antennæ. There is no trace of a central keel on the median segment in the present species.

*Tiphia tarsata* Cam. and *T. magretti* Cam. are omitted by Bingham; so also is *T. femorata* Fab., a European species recorded by Magretti, from Burma (*Ann. Mus. Civ. Genova*, (2) xii., 248).

MYZINE BENGALENSIS, *sp. nov.*

Long. 15 mm. ♀.

*Hab.* Poona, Bengal (*Wroughton*).

Bingham (*I.c.*, p. 65) has been unable to assign the males of the Indian species to their respective females, and describes 7 males and 7 females as distinct species. Doubtless direct observation will be necessary to unite the sexes correctly; and, in default of this information, there is no course open but to treat them as distinct species. Of males, no species is described with red on the abdomen; but of females, there are three with the abdomen red wholly or in part. Of these the present species comes nearest to *M. mandalensis* Magretti, but that has segments 1-5 of the abdomen red and both wings hyaline at the base, the anal segments fuscous, the posterior wings "hyaline, the extreme apex somewhat fuscescent," the tegulae flavo-testaceous, and, in length, it is only 9-10 mm.

Head shining, rather thickly covered with long, white hair; the vertex with scattered punctures, except in the centre behind the ocelli; the ocellar region being also without punctures; the front more closely and strongly punctured; the clypeus strongly punctured except the apex; its middle carinate. Mandibles black, slightly rufous in the middle; the palpi dark testaceous. Scape of antennæ shining, sparsely covered with long, pale fulvous hair, and with large, deep punctures; the second joint also shining and punctured; the flagellum opaque, thinly covered with a pale down, the under side brownish; the basal joints produced on the under side beneath. The base of the pronotum transversely aciculate; the apex bearing all over large, deep punctures, and sparsely covered with long, pale fulvous hair. Mesonotum shining, having some large, deep punctures; and a deep, wide inner and a much narrower outer furrow on its apical two-thirds. Scutellum shining, its sides and apex bordered with large,

deep punctures ; near the centre there is one distinct row and a few other punctures. Post-scutellum shining and slightly punctured in the middle ; the sides strongly aciculated. Median segment strongly aciculated, the apex with the sides closely transversely striated ; down the centre at the base are two flat, irregular keels. Propleuræ punctured ; the apex closely obliquely striolated except at the top, which is punctured ; the metapleuræ stoutly obliquely striolated ; the upper part closely and finely at the base above. The coxæ and femora shining, sparsely covered with long, white hair, this being also the case with the fore tibiæ and tarsi ; the four hinder tibiæ very thickly covered with stiff, white hair ; their calcaria pale fulvous ; the tarsal hairs silvery, their spines pale fulvous. Wings violaceous, the base of the hinder pair hyaline. Abdomen ferruginous, the two apical segments black ; the sides and apex rather thickly covered with long, white hair ; the basal segment with shallow, widely separated punctures ; the other segments with the punctures fewer in number and more widely separated ; the pygidium coarsely punctured, except at the apex, which is pale yellow, dull rufous behind ; the ventral surface covered, not very thickly, with long, white hair.

A smaller species than *M. violaceipennis*, to which it is closely allied ; but from which it is very distinct, differing greatly in the sculpture of the thorax, the pronotum in *M. violaceipennis* being very coarsely longitudinally striolated, and the scutellum very coarsely punctured ; while in the present species those parts bear only scattered punctures ; the punctures on the head are also fewer, and neither so large nor so deep.

MYZINE VIOLACEIPENNIS, *sp. nov.*

Long. 19-20 mm. ♀.

Hab. Poona, Bombay (*Wroughton*).

In Bingham's table (*l.c.*, p. 65), it comes in at "a<sup>1</sup>. Black, 2nd, 3rd, and base of 4th abdominal segment red, hind wings hyaline at base."

Which will now have to be sub-divided, as the terms will apply to two species.

1. Mesonotum rugose, post-scutellum and median segment smooth and shining. *M. madraspatana* Sm.

2. Mesonotum smooth, except for a few large, scattered punctures at the apex; post-scutellum rugose, with a few large punctures in the middle; the median segment opaque, uniformly finely rugose. *M. violaceipennis*.

Head black, shining; the middle of the vertex with a large, smooth space, except for four small punctures placed in a curve in front of a large, deep one; the rest of the front and vertex with large, deep, widely separated punctures, being, if anything, larger and distinctly more numerous over the antennæ, clypeus coarsely punctured, except at the extreme apex; the middle not carinate, mandibles entirely black, fringed with long, pale golden hair; the palpi dark testaceous. First and second joints of the antennæ shining, bearing some large, deep punctures; the flagellum pruinose, the microscopic pile giving it a whitish appearance. The base of the pronotum transversely coarsely aciculated; the vertical part smooth, impunctate; the basal part very coarsely rugose, the punctures very large, deep and elongated, running more or less into each other; mesonotum smooth and shining; on its apical half are a few large, deep, oval and round punctures; on the apical half there is, on each side, a narrow but distinct furrow. Scutellum very coarsely and deeply punctured all over; post-scutellum coarsely aciculated at the sides; its centre with a few moderately large punctures, median segment coarsely aciculated, opaque, the sides of the basal part obscurely transversely striated; the apex sharply oblique, its sides punctured, but not strongly; down the middle of the basal part runs a straight furrow,

slightly narrowed towards the apex ; its sides bordered by sharp keels, its centre with stout transverse keels. Propleuræ strongly punctured at the base ; the apical half strongly longitudinally striated ; the mesopleuræ coarsely punctured, except at the apex ; the metapleuræ strongly closely obliquely striated all over. Wings uniformly deeply violaceous, except the hinder pair at the base. Legs entirely black, shining, the femora sparsely covered with long, pale hair ; the outer side of the hind tibiæ thickly covered with white hair and more sparsely with thick, pale fulvous spines ; on the apex of the posterior tibiæ on the inner side is a thick patch of depressed, pale hair, and in front of the calcaria are four stout, pale fulvous spines ; the calcaria pale fulvous : the tarsal spines rufous. Abdomen shining, smooth : the petiole black, except at the apex, which is red like the 2nd, 3rd, and the basal three-fourths of the 4th segment. The pygidium coarsely irregularly longitudinally striolated, the striae becoming smaller and less distinct towards the apex ; its sides bear long, pale hairs. The ventral segments are coloured like the dorsal ; the third, fourth, and fifth finely punctured at the base and apex : their middle with some large punctures ; the sixth with the punctures fewer and more scattered.

### POMPILIDÆ.

#### POMPILUS ICHNEUMONIFORMIS Cam.

This is probably the species described by Bingham (*l.c.*, p. 110), as *Pseudagenia deceptrix* Sm. The two in my opinion are not identical, and my type does not agree with Smith's (now in the Oxford Museum). *P. deceptrix* is from Celebes.

### SPHEGIDÆ.

#### LARRADA EXTENSA Walker.

This species is omitted by Bingham. It is from Ceylon. (*Cf. Ann. Mag. Nat. Hist.*, Vol. v. (1860), p. 305.)

## SPHEX ROTHNEYI Cam.

Bingham regards this as identical with *Sphex vicinus* Lep., a species very badly described, and placed by Kohl in his Monograph among the unidentifiable species. *S. rothneyi* is, however, very probably only a local form of *Sphex pruinosus* Germar, a species recorded from South Eastern Europe, Western Asia, and North Africa (Syria, Caucasus, Soudan). If the two be identical *S. pruinosus* has a very wide range, as have a few other species of the same genus.

## SPHEX XANTHOPTERUS Cam.

When I described this species as new (*Manch. Mem.*, (4) ii., p. 109) I was quite justified in doing so, as no such species had been recorded from the old world, and my name has been adopted by Kohl and Bingham. Kohl, however, has since (*Ann. k.k. Hofmus. Wien*, x., p. 52) recognized it, by an examination of the type in the Berlin Museum, as the same as *Sphex cinerascens* Dahlbom (*Hym. Eur.*, i., pp. 25 and 436). From this it follows that the American locality given by Dahlbom must have been erroneous.

## SPHEX FLAVOVESTITUS Sm.

This Indian species is omitted by Bingham. The description (*Cat. Hym. Ins. Brit. Mus.*, iv., p. 253) is not very satisfactory; but, as the type is in the British Museum, an examination of it would either establish its specific distinctness, or give it decent burial in the synonymy.

## SPHEX DEPLANATUS Kohl.

This species is omitted by Bingham. The following is Kohl's description (*Ann. k.k. Hofmus. Wien*, x., p. 53).

"♂. Niger; abdomen ex parte rufum. Pedes nigri. Aile infuscatae violaceo-resplendentes. Caput et thorax

*albopilosa*, segmentum medianum supra albo-villosa. *Clypeus pubescentia argenteo-alba adpressa.* *Oculorum margines interiores ad verticem longitudine flagelli articuli 2<sup>di</sup> + duarum tertiarum 3<sup>ti</sup> ad clypeum paullulo minus approximati sunt.* *Scutellum haud convexum, fere deplanatum.* *Post-scutellum non sellæ instar ut in Sph. aurulento impressum.* *Area dorsalis segmenti mediani rugis quinque transverse rugosa.* *Petiolum aliquantum brevior est quam in Sph. aurulento F., multo brevior quam in Sph. pruinoso G.: longitudine antennarum flagelli articulo secundo aequalis; paullulum brevior tarsi postici secundi, sed paullulo longior tertio."*

Long. 20 mm.

Hab. Ceylon.

Allied to *S. pruinosus* and *S. aurulentus*.

ALYSON RUFICOLLE, sp. nov.

*Nigrum, prothorace, mesonoto cum scutello mesopleurisque rufis, ore flagelloque antennarum subtus flavis; alis hyalinis, nervis fuscis.* ♂.

Long. fere 5 mm.

Hab. Kandy, Ceylon (Yerbury).

Head black; a line on the inner orbits of the eyes from near the top, labrum, clypeus, mandibles, and palpi, yellow; the tips of the mandibles black; front and vertex closely punctured, thickly covered with black hair; the clypeus and mandibles with much longer white hair. Pro- and meso-notum closely, but not strongly, punctured; the prothorax entirely, except a black mark on the base in front, the mesonotum with the scutellum and post-scutellum and the mesopleuræ, red; the median segment with two stout converging (but not uniting) keels in the centre, inside of which are two oblique keels, which unite to them shortly beyond the middle of the basal region; inside of these there are some stout transverse keels,

except at the apex ; the apex is rounded ; down the middle is a straight stout keel; across the middle a stout, transverse one, at the side of this are two short, curved, irregular keels; at the apex itself there is, on each side, a stout, oblique keel. The base of the propleuræ distinctly aciculated ; in the centre of the mesopleuræ is a wide, moderately deep, oblique depression. Legs black; the apex of the anterior coxæ white ; the anterior knees, tibiæ and tarsi pale testaceous ; the apex of the posterior coxæ, the apex of the trochanters and a broad band near the apex of the tibiæ, testaceous ; the extreme apex of the hinder femora and its large tooth, piceous. Wings hyaline, but with a faint fuscous tint ; the nervures fuscous ; the recurrent nervures interstitial ; abdomen shining, impunctate ; the maculæ large, pallid yellow.

A very distinct species from *A. annulipes*, being readily known from it by the red collar, and by the absence of a fascia in the anterior wings.

DIODONTUS GENICULATUS, *sp. nov.*

*Niger, nitidus, segmento mediano striolato; mandibulis tegulisque flavis; basi tibiarum testacco; alis hyalinis, nervis fuscis, stigmate nigro. ♀.*

Long. 4-5 mm.

*Hab.* Mussoorce, 6,000 ft. (*Rothney*).

Comes near to *D. striolatus* Cam. from Lahore (*Manchester Memoirs, xli., p. 19*), but readily separated from it by the pro- and meso-pleuræ not being striated, by the four hinder tibiæ being black, except at the base, and by the strongly transversely and longitudinally striolated median segment.

Head large, wider than the thorax ; almost shining, bearing some shallow, not very distinct, punctures ; the front and vertex with a sparse, microscopic black pile ; the oral region with a silvery pubescence and with long, white,

soft hairs ; the clypeus with a small tooth on either side, the centre not being incised. Mandibles large ; the basal half yellow ; the apical piceous ; the palpi dirty yellow ; antennæ entirely black ; the scape shining, bare, impunctate ; the flagellum covered with a microscopic down ; the third and fourth joints equal in length. Thorax shining, glabrous, except for a very slight microscopic pile ; the median segment strongly aciculated, and with six longish, and three very short, irregular, longitudinal keels in the centre, the lateral pairs being united at the apices by a curved keel ; the apex has an oblique slope, is irregularly transversely striated and has an elongated fovea in the middle ; it is closely covered with a short, fuscous pile. Pro- and meta-pleuræ shining ; the mesopleuræ shagreened ; the metapleuræ with a few oblique, not very distinct, keels. Wings clear hyaline ; the second cubital cellule half as long at the top as it is at the bottom ; the second recurrent nervure is received very shortly beyond the middle of the cellule. Legs stout, covered with a white pubescence ; the tarsi more or less rufo-testaceous ; the base of all the tibiæ testaceous all round ; and the anterior more or less testaceous in front ; the hinder pair only testaceous at the base and bearing fine stout spines. Abdomen somewhat shorter than the head and thorax united, shining, pruinose ; the pygidial area strongly aciculated ; the sides distinctly keeled.

PASSALOECUS RETICULATUS, *sp. nov.* (Pl. 4, fig. 2.)

*Nigro-caeruleus ; geniculis, tibiis tarsisque testaceis, alis hyalinis, stigmate fusco, nervis pallide flavis.* ♀.

Long. 5 mm.

Hab. Barrackpore (*Rothney*).

Head shining, apparently bare ; black with a greenish hue ; the front broadly hollowed ; the hollow bordered by a stout keel, which originates in the front of the anterior

ocellus, where it bifurcates; from the side of the fore ocellus a narrower keel runs to the side, uniting with the larger keel before the eyes; the space between the keel and the eyes is stoutly crenulated. On the upper half of the eyes, but not touching them, is a narrow furrow; behind, on the upper half is a much wider, deeper, crenulated furrow; the lower part of the eyes on the inner and apical side is distinctly margined by a keel. Antennæ black, the scape slightly, the flagellum broadly, testaceous beneath. Thorax black, with a greenish tinge; the mesonotum shagreened; a fine transverse furrow at the base of the scutellum; down the centre of the mesonotum are two wide furrows which slightly converge towards the scutellum and are, towards the apex, slightly crenulated; in the centre are two obscure longitudinal furrows; and, outside the central, there are two narrower, complete furrows, which are distinctly curved towards the base of the thorax. At the base of the scutellum there is a wide, deep, straight furrow behind the narrower one. Scutellum large, indistinctly keeled down the middle; the sides straight, distinctly margined; post-scutellum distinct; the sides obliquely truncated towards the apex. Median segment with a decided coppery-greenish tint; the base completely areolated; all the areae being distinctly defined; the middle portion is entirely occupied by a deep pentagonal area, wider than long and, of which, the apex is rounded inwardly; down its centre is a narrow furrow, and near its apex are two stout, transverse, somewhat curved keels; the apex itself is perpendicular and transversely roughened. In front of the tegulae are two or three stout keels, and inside of these a few large, round punctures. Wings clear hyaline, the stigma fuscous, paler above; the costa in front of it fuscous, the rest of it and the nervures yellow; the second cubital nervure narrowed on the lower side; the second recurrent nervure almost interstitial. Femora sparsely

covered with white hair ; the trochanters, apex of femora, tibiæ, and tarsi rufo-testaceous. Petiole as long as the hinder coxæ ; coarsely shagreened, the sides distinctly margined ; beneath, it is prolonged to the apex of the second segment ; the base of the third segment being obliquely truncated beneath, it forms, with the apex of the petiole, a wide, triangular incision. The rest of the abdomen smooth and shining ; the apex without a pygidial area.

In some respects this species is intermediate between *Pemphredon* and *Passaloecus*, its petiole being longer than it is in the latter, but much shorter than in the former, from which it further differs in the hinder tibiæ not being spined ; in the head not being covered with long hair ; in the margined eyes, in the vertex and hollowed front bearing keels ; and in the median segment having keels which form large distinct areae, the lower part of the segment, too, being largely and deeply hollowed. The labrum is not emarginate at the apex, so far as I can make out from the dense silvery pubescence which covers the mouth ; the mandibles are large, not furrowed ; oblique at the apex, where there is one large, acute tooth, and a much smaller and blunter one, next to it. The eyes reach to the base of the mandibles and are parallel ; the antennæ are situated quite close to the base of the clypeus, but not touching it ; the transverse basal nervure is interstitial ; on the mesopleuræ there is one distinct, moderately wide and deep, complete, longitudinal furrow. The second cubital cellule is much narrower than it is in either *Pemphredon* or *Passalocetus* proper, and is much narrowed on the lower side ; the stigma is large ; the radial cellule elongate, lanceolate ; in the female, there is no pygidial area. The tubercles do not reach to the tegulae.

This species, having only one longitudinal furrow on the mesopleuræ, is a *Passalocetus* as limited by Verhoeff (*Ent.*

*Nachr.*, xxiv., p. 383) who forms for the species having two longitudinal furrows the sub-genus *Coelocetus* and for those having three the sub-genus *Heroecus*.

Only one oriental *Passaloecus* is known, viz., *P. levipes* Bingham, (*l.c.*, p. 267), from Karennee, Tenasserim, 4,000 ft., which is very different from the species here described; e.g., the median segment is transversely striated, the head is without keels, the thorax not punctured, &c. No mention is made either in the generic or specific descriptions of there being any furrows on the mesopleuræ or on the mesonotum.

CRA BRO TAPROBAN.E, sp. nov.

*Niger, scapo antennarum subtus, mandibulis, linea pronoti, maculis duabus scutelli, maculis 2 abdominis, tibiis tarsisque pro parte flavis; alis hyalinis, nervis nigris.* ♀.

Long. fere 11 mm.

*Hab.* Trincomali, Ceylon (*Yerbury*).

This species does not fit into any of the sections in Bingham's table (*l.c.*, p. 321). The present species might be ('following his table) characterized as follows:

Enclosed space at base of median segment with five short, stout, widely separated striae; coarsely aciculated; the sides of the segment next the enclosed space with some oblique striae; the third abdominal segments with two transverse yellow lines at the base.

Black; alutaceous; the mandibles, except at the apex, the scape of the antennæ, a broad line, somewhat interrupted in the middle, on the pronotum, the tubercles, a somewhat smaller mark behind them under the tegulae, a mark on either side of the scutellum at the base, a smaller mark on the mesonotum next to this and nearer the wings, and an elongated line on either side of the third abdominal segment at the base, yellow. Head large, alutaceous, the front and vertex with a microscopic, fuscous

pile; the lower three-fourths of the orbits densely covered with a silvery pubescence; the clypeus covered with a longer and denser silvery pubescence. Ocelli . . . Clypeus stoutly keeled in the middle, its apex slightly projecting; mandibles yellow; the teeth black, the part at their base piceous. Scape of the antennæ shining, yellow, glabrous; the flagellum black, and covered with a microscopic down. Pronotum thickly covered with fuscous pubescence; the mesonotum thickly covered with a microscopic pile; the depression at the base of the scutellum crenulated; the post-scutellum closely longitudinally punctured; median segment finely rugosely punctured: the enclosed space at the base with a shallow, somewhat crenulated furrow in its centre; on either side of this are one short, and four longer, longitudinal keels; at the sides are a few oblique keels; the apex of the segment has a rounded, slightly oblique slope and is densely covered with white pubescence; its centre with a shallow furrow; its sides with a sharp keel extending from the base to the apex. Propleuræ hollowed, glabrous; the base with three stout, curved keels turned towards the base, and one turned towards the apex; the mesopleuræ alutaceous, densely covered with white pile; behind the tubercles is a sharp, distinct keel, oblique at the base, then following the edge of the pleuræ to the sternum; immediately behind the yellow mark is a distinct oblique furrow, running to the sternum, where it joins the keel. Metapleuræ closely and uniformly obliquely striated, except at the base, where there are, at the top, five longish, and, at the bottom, five shorter striae; the two sorts being separated by a space. Legs black; the fore femora broadly yellow at the base and with a line, contracted in the middle, on the outer side at the apex; the tibiae yellow, black behind; the tarsi yellow, more or less rufous towards the apex; the hind tibiae spined; the middle spines originating from tubercles.

Wings hyaline, with a faint fuscous tinge. Abdomen as long as the head and thorax united, alutaceous; the petiole somewhat longer than the second segment, nodose at the apex; the third and fourth segments shining at the base; the fifth segment thickly covered, especially towards the apex, with fulvous pubescence, the apex of the segment itself being fulvous; the base of the pygidial area closely rugosely punctured; the narrowed apex shining, smooth, except for a few indistinct striae; the sides of the segment fringed with long, stiff, pale fulvous hairs. On the side of the third segment is a large mark broader than long, the base rounded, narrowed in the middle, almost heart-shaped; on the side of the fourth segment is a more elongated yellow mark; the outer half broader, and dilated posteriorly; the mark on the side of the fifth segment is larger, wider, and projecting backwards on the lower side at the base. The ventral surface is sparsely covered with longish fuscous hair.

Only one species of *Crabro* is recorded from Ceylon by Col. Bingham, *C. palitans* Bing., which also is found in North-West India. It is very different from *C. taprobanæ*, having the abdomen not petiolated.

*CRABRO YERBURII, sp. nov.*

Long. 6 mm.

*Hab.* Trincomali, Ceylon (*Yerbury*).

Belongs to Bingham's section "A. b. Petiole short, subpyriform, gradually widened from base to apex." *C. odontophora* differs from it in the twisted, dilated and, at base, dentate basal joint of anterior tarsi, in the median segment being strongly aciculated; the hollows at its sides with stout keels. The "enclosed space" on the median segment very smooth, shining and glabrous; surrounded by a wide, moderately deep, crenulated furrow, and having a similar crenulated furrow down its centre;

the sides of the segments are finely transversely aciculated; the apex has an oblique slope and is widely hollowed in the middle. Mesopleuræ shining, minutely punctured, thickly covered with short, silvery pubescence; the oblique furrow shallow, densely covered with longish silvery hair; the metapleuræ shining, almost glabrous, the basal portion hollowed; there is an oblique, not very clearly defined, keel over the hinder coxæ, above which is a line of fine transverse striations. Legs thickly covered with white pubescence; the apices of the four anterior coxæ and of their trochanters, the apex of the fore femora, and the four front tibiae and tarsi, yellow; the tibiae broadly lined with black behind; the hinder tibiae black, broadly yellow at the base; their spines longish, pale; their calcaria large, the inner one being, at the sides and base, finely rugose; the abdomen is marked with yellow.

*C. ardens* also differs from it in the base of the median segment being finely longitudinally striated, and it has "a medial vertically impressed line from the anterior ocellus to between the antennæ," while the legs and antennæ are devoid of yellow.

Head shining, impunctate; except on the lower part of the front, where it is obscurely punctured; the clypeus hidden by dense silvery pubescence; the vertex with a dense microscopic down; the space between the eyes over the antennæ bare, glabrous, except at the sides, where there is a narrow edging of silvery pubescence; the mandibles yellow, their apices rufo-piceous; palpi yellow. Prothorax shining, neither punctured nor striated; the apical part thickly covered with minute pubescence; the mesonotum with shallow minute punctures; sparsely covered with a microscopic down; the scutellum, if anything, more strongly punctured; a broad, irregular, yellow, transverse mark at its base; the post-scutellum broad at base, narrowed towards the apex; the apices of all the tarsi

incline to rufous. Wings clear hyaline, the stigma and nervures fuscous; the apical abscissa of the radius straight, oblique; the appendicular cellule incomplete at the apex. Abdomen nearly as long as the head and thorax united; the petiole slightly longer than the second segment, narrowed at the base, gradually widened towards the apex; the apical segments thickly covered with a white pubescence; the pygidial area smooth, except for a double row of five large, round punctures down the outer side of the centre; the sides keeled; the ventral segments shining, the apices of the segments pale piceous; the apical half of the hypopygium punctured.

*Note*.—I have stated above that only one Ceylonese species of *Crabro* is recorded by Col. Bingham in his Manual; but he has omitted from that work all mention of *Dasyproctus ceylonicus* Saussure, described from Ceylon in the *Reise der Novara*: *Hymen.* p. 85, pl. iv. f. 51. *Dasyproctus* is a *Crabro* with a very long, narrow petiole, not dilated towards the apex, as it is in *Rhopalum*. It is regarded by Kohl in his generic revision as a section of *Crabro* only.

#### CRABRO REVELATUS, sp. nov.

Long. to apex of petiole 6 mm. (in *C. taprobane* it is 7 mm.).

*Hab.* Trincomali, Ceylon (*Verburry*).

Comes near to *C. taprobane*, and, like that species, has an elongate petiole, but here it is more slender; it differs further in the post-scutellum being coarsely longitudinally striated; in the vertex at the edge of the frontal depression being distinctly margined; and in the furrow on the middle of the apex of the median segment being wider.

Scape of antennæ lemon-yellow, shining, glabrous; the flagellum black, sparsely covered with a pale down; the second joint yellow beneath; the third only very little

longer than the fourth. Head black; alutaceous, the vertex covered with a dark, microscopic down; the front deeply excavated; thickly covered with depressed, silvery pubescence, as is also the clypeus; the frontal depression at the top with a distinctly-defined margin, the centre of which, looked at from beneath, is slightly curved; the eyes on the upper part on the inner side are slightly margined; below the middle is a small, human-ear-shaped fovea; the ocelli are in a curve. Mandibles lemon-yellow; the apex piceous-black; the basal part sparsely covered with long, white hairs. Mesonotum alutaceous, thickly covered with a microscopic, fuscous down; the pronotum with longer, fuscous hair; the scutellum like the mesonotum, its apex with some longitudinal striæ, and a thin keel runs down its middle; on its base at the side is a small, and, behind this, a larger, transverse yellow mark; the postscutellum finely rugose; coarsely longitudinally striolate. Median segment with a rounded slope; the basal area clearly defined; bearing a few oblique, widely separated keels; those at the sides being more distinct than those in the middle and extend beyond the area, outside of which the segment is closely, but not very distinctly, punctured; the middle of the apical part has a wide, deep furrow. The propleuræ at the top have a few fine, indistinct striæ, the lower part in the centre has a few stout, longitudinal striæ. The tubercles are yellow; the oblique furrow behind them straight, narrow; the longitudinal furrow narrow, shining; the oblique furrow on the mesopleuræ wide, deep, indistinctly crenulated; the apical semi-vertical furrow wider, deeper, and distinctly crenulated; the metapleuræ at the base shining, strongly closely obliquely striated, the rest of it finely and closely longitudinally striated, the striæ stronger on the lower side. Legs: the apices of the coxæ, of the femora, and the tibiæ lemon-yellow; the tibiæ for the greater part black beneath; the

tarsi yellow, suffused with rufous; the femora covered with long, white hair. Wings hyaline, the nervures and stigma fuscous. Petiole covered with long, white, soft hair; alutaceous, the base closely longitudinally striated; its under part keeled down the centre and with a lateral keel between it and the edge. In this latter point—in the under side of the petiole being distinctly keeled down the centre—it differs from *C. taprobane*.

#### DIPLOPTERA.

#### EUMENIDÆ.

#### EUMENES BUDDHA Cam.

This species is omitted entirely by Col. Bingham. It comes into his section "C: median segment convex, vertical, with a well-marked groove down the middle, widening at apex into a deep  $\wedge$ -shaped hollow": and to sub-section " $\alpha$ : Petiole long, gradually widening to the apex, longer, never shorter than the thorax and median segment united"; but it can hardly be said to be "medially with well developed, prominent lateral tubercles." The petiole is distinctly longer than the head and thorax but not longer than the other segments united; its basal third is distinctly narrowed, becoming gradually wider; the apical third is of uniform thickness.

It has pretty much the same form and size and colour of the wings as *E. vishnu*; but differs altogether in the colour of the legs, and in the form of the antennal tubercle, which here is rounded at the top and has a long pedicle; while in *E. vishnu* it is much shorter, broader and triangular at the top and with a short, broad pedicle.

#### EUMENES VISHNU, sp. nov.

*Niger, thorace abdomineque flavo-maculatis; alis violaceis; pedibus rufis.* ♀.

Long. 10 mm.

*Hab.* Allahabad (*Rothney*).

Belongs to the small group with red legs. *E. erythropoda* differs from it in being larger, in the thorax being largely marked with red; and in the petiole not being distinctly narrowed at the base and in being coarsely rugose. The form of the median segment is the same—rounded at the base, oblique at the apex—but it differs in the middle of the apex, having a deep triangular depression.

Antennæ black, distinctly thickened towards the apex; the scape shining, covered with black, short hair; the flagellum bare, not shining. Front and vertex strongly punctured, shining, sparsely covered with longish, fuscous hair; the antennal tubercles yellow, large, rounded at the base, gradually narrowed from the end of the rounded part to the apex. Clypeus with the middle of the apex curved, the sides oblique; thickly covered with silvery pubescence; at its base are two large, oblique, yellow marks narrowed on the inner side; the apex of the labrum rufous, as is also the apical half of the mandibles. Thorax coarsely punctured; closely covered with white pubescence; that on the median segment being the longer. On the centre of the pronotum is a complete yellow line, a little curved round at the edges; on the sides joined to the central line is a shorter, yellow mark, narrow at the base, widened gradually to near the apex, which again is slightly narrowed, broadly obliquely on the hinder side, more rounded on the outer and at the apex; yellow also is a line on the keel at the side of the apex of the scutellum; the post-scutellum, a thin line at its side, a mark in front of this, a somewhat oval mark on either side near the apex of the median segment, and a bullet-shaped mark on the mesopleurae, near the tubercles. In the centre of the mesopleurae is a furrow, obscurely crenulated at the base, widened and smooth at the apex. The base of the metapleuræ smooth and impunctate, except the space over the

coxæ, which has some large punctures; the rest coarsely punctured, at the apex running into reticulations. Legs ferruginous, the coxæ and the four hinder trochanters black; the hinder tarsi fuscous. Wings uniformly violaceous; the nervures and stigma black; at the top the second cubital cellule is only very slightly longer than the space bounded by the first recurrent and first transverse cubital nervures. Petiole slightly longer than the head and thorax united; the basal third almost impunctate; the rest strongly punctured; the part behind the tubercles distinctly narrowed; the tubercles indistinct; the second segment is closely and strongly punctured; the other smooth and shining; shortly beyond the middle of the petiole is an oval mark on either side; the apex is banded with yellow; in front of the middle and second segment is, on either side, an irregularly triangular mark; its apex is belted all round with yellow.

EUMENES ERYTHROPODA, *sp. nov.*

*Niger, basi clypei, pronoto, scutellis maculis duobus, metanoto pedibusque rufis; alis violaceis.* ♀.

Long. 15 mm.

*Hab.* Malacca.

Head coarsely punctured, the apex of the clypeus and the labrum smooth; the front and vertex thickly covered with long, fuscous hair; the clypeus and labrum with white depressed pubescence; black; the wedge-shaped space between the antennæ, almost the basal half of the clypeus, its apex and the labrum, rufous; the basal mark on the clypeus with two triangular expansions in its apex; the apex of the clypeus with a shallow, waved incision, the sides of which do not form teeth; the apex of the labrum rounded. The base of the mandibles broadly black; the rest rufous, slightly fringed with long, white hair; the palpi obscure testaceous. Antennæ black;

the basal two-thirds of the scape rufous. Thorax coarsely punctured all over; the prothorax rufous, except beneath; the scutellum with two closely joined marks; the post-scutellum, the sides of the metanotum, the apex of the metapleuræ, and a large mark—longer than broad, slightly narrowed on the lower side, and with all the sides straight—rufous. The median segment has a gradually rounded slope, the apical half being straight, oblique; the whole segment rather closely covered with long fuscous hair, and towards the apex with a white pubescence; the centre at the apex is excavated and projects (as seen from above) into triangular projections between the base of the abdomen. On the metapleuræ the rufous colour does not extend on to the lower side at the base. Legs rufous; the coxæ and trochanters black; the apices of the hinder tibiæ and the tarsi fuscous. Wings violaceous, lighter, almost hyaline, at the extreme base. Petiole as long as the rest of the abdomen; closely and coarsely punctured; at the base sparsely covered with longish, fuscous hair; the extreme apex with a narrow, rufous band; the second segment coarsely punctured; its apex depressed; the third and following segments impunctate; the ventral segments impunctate.

The only species with which it can be compared is the Ceylonese *E. humbertiana* Sauss., which is, however, very different; e.g., the thorax is nearly as wide as long, the clypeus is smooth, and only ferruginous at the apex; there is only "a narrow, twice-interrupted line on the margin of the pronotum," the clypeus ends in two blunt teeth, &c.

*PTEROCHILUS FULVIPENNIS, sp. nov.* (Pl. 4, fig. 3, 3a, b.)

*Hab.* Poona (*Wrughton*).

Only one species of *Pterochilus* is recorded from India—*P. pulchellus* Sm., known from N. W. India. It, and the

species here described, may be separated as follows, apart from the oral characters noted below.

Black, the base of the abdomen red ; the wings hyaline, abdomen not pedunculate, length, 7—8 mm.

*P. pulchellus* Sm.

Fulvous, the head, pronotum and apex of abdomen broadly yellow ; wings fulvous : abdomen pedunculate ; length, 24 mm.

*P. fulvipennis.*

Belongs to Saussure's first division : labial palpi large, not plumose, carrying only stiff hairs ; mandibles short ; abdomen pedunculate. Dark rufous : the head, except a transverse stripe on the vertex uniting the eyes, the pronotum, two marks near the apex of the second abdominal segment, and the four apical segments broadly, lemon-yellow ; wings fulvo-hyaline, the apex smoky ; the costa and stigma fulvous ; the nervures fuscous.

Antennæ fulvous, the scape lemon-yellow, except at the extreme apex ; bare except for a pale, microscopic down on the apical joints. Head lemon-yellow, shining ; the front and vertex bearing a short, pale pubescence ; a rufous band across the vertex behind the ocelli joining the eyes ; in the middle, it is prolonged to enclose the ocelli, from the sides of which runs a short, oblique line of the same colour. Mandibles dark rufous ; the teeth black ; on their apices are four short, distinct, blunt teeth ; the apical rounded ; the palpi rufo-testaceous ; the hairs long, stiff, pale. Clypeus bare ; bearing scattered, shallow punctures ; the apex with the sides almost straight, oblique ; the centre roundly incised, the incision at the sides ending in somewhat triangular, sharp teeth. Thorax rufous, except for a broad lemon-yellow mark on the pronotum ; the mark does not reach the apex of the segment and is bluntly rounded and narrowed at its apex. Mesonotum with scutellum densely covered with a fuscous, microscopic pile ; at the apex, touching

the scutellum, are two straight, distinct, moderately deep and wide furrows ; and opposite the apex of the tegulae, but not reaching the scutellum, is a shorter more indistinct furrow. Scutellum flat, shining ; post-scutellum with a rounded slope ; its apex bordered by oblique furrows, which unite at the top with the wider and deeper furrow down the centre of the median segment. Pro- and mesopleuræ with a few scattered shallow punctures ; shortly behind the middle of the mesopleuræ is an oblique, moderately wide and deep, crenulated furrow, which unites with a narrower oblique crenulated one originating at the base of the mesopleuræ ; from the posterior part of the upper furrow runs a short, much wider and deeper, oblique furrow. At the base of the median segment is a crenulated, slightly oblique furrow, wide at the top, much narrower and more distinctly crenulated at the bottom. In front of the hinder coxae are two stout teeth ; the hinder being narrower, sharper and longer than the anterior. Metapleuræ smooth, the middle aciculated ; the apex punctured ; the apical half of the median segment being also marked with punctures ; and rather thickly covered with longish, pale hairs. Legs coloured like the body ; the femora sparsely covered with longish, pale hairs ; the tibiae and tarsi more thickly with pale pubescence. Second cubital cellule much narrowed at the top, being there slightly shorter than the space bounded by the second recurrent and the second transverse cubital nervures. Petiole elongate, slightly, but distinctly, longer than the second segment, becoming gradually wider from the base to the apex ; the apex with distinct punctures ; and having in the centre a deep, short, longitudinal furrow ; the lateral teeth, before the middle, large, triangular. Second segment obscurely punctured ; in front of the middle are two moderately large, transverse marks ; the third segment broadly lemon-yellow at the apex ; the base black, rufous at the sides ;

the fourth segment broadly yellow, a narrow, short, rufous line down the middle at the base, and a rufous mark on each side; the fifth segment broadly yellow, in the middle; the rufous triangularly projecting into it at the sides and at the base in the middle; the last segment broadly yellow; there is a transverse depression at the apex. The sides, base and apex of the lower side of the petiole smooth, impunctate, the rest with stout, slightly curved keels. The second segment, except in the middle, with shallow, rather widely separated, punctures; the other segments much more closely and strongly punctured.

What is no doubt a variety has the apex of the second abdominal segment broadly lemon-yellow, while in its centre, at the base, is a large, somewhat triangular, black mark, the narrow part of which is at the base; its fourth segment is black at the base.

*Note.*—This species may not be a true *Pterochilus*. The maxillary palpi are 6-jointed as in the typical species; but the labial are distinctly 4-jointed, whereas in *Pterochilus* proper they are 3-jointed only. On the basal joint of the labial palpi there are two or three hairs near the middle; and at the apices of the first, second, and third joints are two or three long, stiff, bristle-like hairs. The fourth joint is bare and is nearly half the length of the third. In addition to the four large apical teeth on the mandibles, there are two small ones and a much larger rounded one.

The number of joints in the labial palpi and their clothing do not appear to be features of generic importance. Saussure says (*Monog. des Guêpes*, iii., p. 321): “On remarque des espèces dont les palpes labiaux sont à peine comprimés et à peine plumeux; on aperçoit même parfois un quatrième article rudimentaire;” but in our species the fourth joint cannot be called “rudimentary,” being quite distinct.

## ODYNERUS.

### ODYNERUS EREBODES, *sp. nov.*

*Niger, capite thoraceque distincte punctatis; abdominis segmentis 1-3 pallide flavo-balteatis; pedibus sordide rufis;*

*basi clypei scapoque antennarum subtus pallide flavis; alis violaceo-fumatis.* ♀.

Long. 9 mm.

Hab. Poona (*Wroughton*).

In Bingham's table (*l.c.*, p. 362) it comes in " $\alpha^4$ . Third abdominal segment with a transverse yellow fascia on the middle of its posterior margin" which may now be subdivided as follows :

Scape of antennæ black; tegulæ yellow, post-scutellum with a yellow spot on the angles, wings clear hyaline.

*O. burmanicus* Bing.

Scape of antennæ yellow beneath; tegulæ entirely black; post-scutellum impunctate, wings smoky. *O. erebodes*.

Head coarsely punctured; the punctures large, round and deep; black; a large, curved band on the base of the clypeus, a small, heart-shaped mark between the antennæ, a line along the lower curve of the eye, and two small marks, longer than broad, on the apex of clypeus, pallid yellow; mandibles black, the apex broadly piceous; an elongate, yellow mark in the middle at the base; this mark being sharply pointed at the apex. Palpi testaceous. Clypeus as long as its breadth in the middle; the apex narrowed, the sides oblique; the middle with a shallow, rounded incision, the sides of which form triangular teeth. The clypeus has a few shallow punctures and is densely covered with silvery pubescence. Front and vertex bearing large, deep, distinctly separated punctures; the front very thickly, the vertex more sparsely, covered with silvery pubescence and hairs; the eye orbits, on the lower side behind, thickly covered with silvery pubescence; a little above the middle, there is a small, yellow mark. Antennæ covered with a white down; the scape yellow beneath. Pro- and meso-notum with scutellum bearing all over deep, large punctures, those on the apical part of the mesonotum being the larger; thickly covered with short fuscous pubescence,

the pronotum transverse in front, and bearing two short, yellow lines in the middle; the post-scutellum coarsely rugosely punctured, thickly covered with black hair; the sides oblique, the middle depressed; the median segment with an oblique slope, the centre not excavated; in the middle deeply furrowed. Pleuræ coarsely punctured like the mesonotum, the punctures on the metapleuræ towards the apex running into reticulations. Legs dark rufous; the coxæ blackish; the femora and tibiæ in front blackish; the extreme apices of the femora yellow; the four hinder tibiæ with a yellow line in the middle in front; the tarsi infuscated. The wings are lighter in tint behind and at the base; the nervures and stigma black. Abdomen with the basal segment behind and at the sides, the second with the apex all round and the third with a band in the centre, pale yellow; the basal segment rounded at the base; sparsely punctured; the second segment strongly punctured; the third still more strongly, the puncturing on the other segments becoming gradually weaker; the basal segment yellow, suffused with blood-colour beneath.

*ODYNERUS WROUGHTONI, sp. nov.*

Long. 8 mm.

*Hab.* Poona (*Wroughton*).

In Bingham's table (*l. c.*, p. 362) it comes in at " $\alpha^2$ . Base of 1st abdominal segment red;  $\alpha^3$ . abdomen petiolate" which will now be sub-divided:

Median segment not reticulated at the base and with a carina on either side; the three apical segments of the abdomen not marked with white in the centre above.

*O. miniatus* Sauss.

Median segment reticulated at the base, without a keel on either side; the three apical segments of the abdomen marked with yellow in the middle. *O. wroughtoni*.

The antennæ black; the scape clear yellow; the flagellum brownish beneath; the flagellum bearing a

sparse, white, microscopic pile. Head coarsely punctured, sparsely covered with short, white hair; the hinder ocelli in large deep pits. The centre of the clypeus black, except the apex, which is red; this black and red part coarsely and strongly punctured; the black narrowed at the base and not keeled laterally; but the rest is bordered by distinct, reddish, straight keels which converge slightly towards the apex, which is transverse; its sides, except at the apex, yellow; and punctured on the outer side. Mandibles red, yellow at the base; the palpi yellow; above the antennæ is a yellow mark, mitre-shaped, except that it is roundly produced beneath. Thorax black; two large marks on the middle of the pronotum—narrow at the base, wide, and oblique at the apex, the post-scutellum, and a somewhat pyriform mark, below and in front of the tegulæ, yellow. Pro- and meso-notum with the scutella strongly punctured; the base of the median segment in the centre reticulated, densely covered with white pubescence, especially at the centre of the base, where it almost hides the surface. Pro- and meso-pleuræ strongly punctured, covered with silvery hair; the metapleuræ apparently impunctate, the surface hidden by silvery pubescence. Tegulæ yellow, reddish in middle. Wings hyaline; the nervures and costa blackish; the stigma fuscous; the second cubital cellule at the top narrowed, being there not much wider than the space bounded by the first transverse cubital and the first recurrent nervures. Legs red, the tibiæ yellow on the outside, this being also, to a less extent, the case with the tarsi at the base. Petiole red; yellow at the apex above; shining, punctured towards the apex; the second segment obscurely punctured at the base, more strongly towards the apex; an oval, irregular spot on either side near the apical third; its apex with a moderately broad, yellow band, slightly dilated at the sides, and at the middle; the 3—5 segments

more strongly and closely punctured ; on the apex of the third segment in the middle are two small, yellow marks ; on the fourth segment in the centre is a much larger mark, transverse at the apex, contracted in the middle at the base and with the sides rounded ; on the apex of the last segment is a larger yellow mark rounded at the base, the apex roundly projecting in the middle. Beneath, the basal segment is red ; the apex of the second, yellow.

## VESPIDÆ.

### ICARIA JUCUNDA, sp. nov.

Long. 15 mm. (worker).

*Hab.* New Guinea (*Cuthbertson*).

Agrees closely in size, form and coloration with *I. ferruginea* ; but may be known from it by the scutellum and post-scutellum being furrowed down the centre ; by the middle of the median segment being much more strongly and broadly transversely striated, by the petiole being longer, by its narrowed basal half being narrower compared with the apical and more distinctly separated from it ; by the yellow band on the second abdominal segment being much narrower and by the wings being much lighter in tint, their apex being only lightly infuscated.

Several species of *Icaria* are known from New Guinea and the neighbouring Islands ; but the present species does not agree with any of them. Smith's catalogue (*Proc. Linn. Soc. (Zool.)*, 1869) is not trustworthy. In *Icaria* there are several noteworthy omissions ; e.g., *I. festina* Sm., *I. bicolor* Sm. (*Proc. Linn. Soc. (Zool.)*, 1864, p. 90), from New Guinea, and *I. australis* Sauss., from Dorey.

Rufo-ferruginous ; the apex of the clypeus all round, the base of the mandibles broadly, the edge of the thorax all round in front, scutellum, post-scutellum, two moderately large, oblique marks on the apex of the median

segment, a large mark on the base of the mesopleuræ immediately under the wings, a more obscure one above the middle coxæ, a narrow line on the apex of the petiole and the apical fourth of the second segment above and the apical eighth below, yellow. Head coarsely, but not very distinctly, punctured; the front and vertex sparsely covered with a short, sparse, pale pubescence; the face with the pubescence much thicker and with a fulvous hue; the clypeus covered with long, bright golden hairs. Antennal fovea deeply furrowed in the middle above. Sides of the clypeus straight, oblique, its centre not ending in a point or tooth. Mandibles ferruginous, the teeth black; a large, somewhat triangular, yellow mark on the base above, its apex reaching beyond the middle. Antennæ ferruginous, the scape somewhat darker in tint; the flagellum, especially towards the apex, densely covered with a white down. The edge of the pronotum sharply carinate. Pro- and meso-notum coarsely punctured, running into obscure reticulations towards the apex; the edge of the pronotum narrowly depressed, the depression forming a furrow and black. Scutellum and post-scutellum rather strongly, but not closely, punctured; the central furrow on the scutellum deep, shining, rufo-piceous; that on the post-scutellum broader but not quite so deep. Median segment with an oblique slope; its centre appearing raised through being transversely striated, and bordered by a distinct margin or furrow; the centre at the apex deeply excavated, and with a distinct furrow in the middle. Pro- and meso-pleuræ coarsely punctured. The base of the metapleuræ strongly, coarsely and irregularly longitudinally striated, bordered behind by a black furrow, and below by a short, oblique, shining furrow, from which a curved, not very distinct, furrow runs to the hinder coxæ. Legs ferruginous; the coxæ densely covered with fulvous pile, especially at the base on the under side. Wings hyaline, the costal and

radial cellules smoky; the stigma flavo-testaceous; the nervures blackish. Petiole elongate, the basal third distinctly narrowed and separated from the rest; the narrow yellow apex being also slightly narrowed; shining, impunctate; towards the apex thickly covered with depressed, fulvous hair. The other segments closely and rather strongly punctured, particularly the third and following.

**ICARIA CEYLONICA, *sp. nov.***

Long. fere 9 mm. (worker).

*Hab.* Periyakullam, Ceylon (*Verbury*).

In Bingham's table (*I.c.*, p. 386), this species can be referred to "A. Reddish or reddish-brown, with yellow markings," and to subsection "a. second abdominal segment with no transverse yellow band on its apical margin," which will now be subdivided :—

Head and thorax rufous; abdomen black; hind legs for the greater part black. *I. guttatipennis.*

Entirely rufous, except the second abdominal segment, which is infuscated; legs without black. *I. ceylonica.*

Head reddish, sparsely covered with short, glistening white pubescence; the front and vertex with moderately large, rather widely separated punctures, the ocellar space fuscous; the antennal tubercle bare; furrowed above; the clypeus almost bare at the apex, its sides oblique, the middle ending in a tooth, and with some large punctures; at the base of the mandibles is a black spot. Scape of antennæ rufous, infuscated above; the flagellum paler, infuscated above, especially towards the apex. Pro- and meso-notum with shallow, rather large punctures all over; the mesonotum darker in tint, thickly covered with a microscopic, white pile; the base of the post-scutellum black, obscurely crenulated; the median segment with a large, wide, deep, black depression in the middle; the depression becoming gradually, but not very greatly, nar-

rowed towards the apex; its centre itself has a furrow, and it is obscurely transversely striated. Pleuræ somewhat infuscated except at the base of the pro- and the middle of the meso- above; the mesonotum black. Legs pale rufo-testaceous, the tarsi paler; the hinder coxæ black beneath; the fore femora slightly, the four hinder more broadly, lined with black beneath. Wings hyaline; the apex with a blackish cloud extending from the second transverse cubital nervure to the apex; dark in the radial cellule, more obscure in the cubital; the nervures blackish; the stigma testaceous; darker along the upper border. Petiole with a distinct, narrow neck, from which it becomes gradually wider to the apex, which has a narrow, pale border; the second segment has the basal three-fourths or so obscure black, except on either side at the base; the third segment is blackish at the base; the fourth and fifth at the apex, laterally, the apical segments thickly covered with white hair. On the ventral side the apical four segments are black.

#### ANTHOPHILA.

#### COLLETIDÆ.

##### COLLETES DENTATA, sp. nov.

Long. 11—12 mm. ♀ et ♂.

Hab. Poona, Bombay (*Wroughton*).

The only Indian species of *Colletes* may be separated from the present as follows:—

Vertex with “a few fine punctures”: the median segment at base longitudinally rugose, the apex with the sides smooth. *C. dudgeonii* Bng.

Vertex coarsely punctured, the median segment strongly reticulated; the sides of the apex transversely striated. *C. dentata*.

Clypeus apparently closely and rather strongly punctured, but the surface cannot be properly observed from the matting of the hairs; the front and vertex

strongly punctured; thickly covered with long, white hairs; a straight, narrow furrow runs from the ocelli to the antennæ; the hair on the sides longer and thicker than on the vertex. The scape of the antennæ covered with longish, stiff, black hairs; the flagellum glabrous. Thorax black; the pro- and meso-notum and scutellum strongly punctured; the pronotum thickly covered with long, white hair. The edges of the pronotum on either side project into a large, sharp plate, the base of which projects into a sharp, triangular tooth. Metanotum at the base with a strongly reticulated area, which, at the apex, is narrowed and runs into a wide, deep, and smooth furrow, slightly narrowed towards the apex and bordered by stout keels; on either side of this furrow it is smooth; on the outer side it is apparently punctured, but the punctuation, if present, is hidden by a thick covering of long, white hair. Propleuræ almost impunctate, at the apex thickly covered with long, white hair; the mesopleuræ coarsely punctured, the punctures large and clearly separated; an obscure, vertical furrow down it behind the tubercles, and an oblique, longitudinal one above the middle; the metapleuræ finely and closely rugose; a few oblique, short keels above the coxæ. Legs black; the calcaria pale; the femora sparsely covered with longish, white hair; the tibiae and tarsi thickly with shorter pale hair, which has on the tarsi a fulvous tint. Wings dark fuscous, with a violaceous tinge; the base paler, the apex from the end of the radial cellule hyaline; the stigma and nervures black. Abdomen smooth, almost shining; all the segments fringed with a dense band of depressed, white pubescence; except the last, which is closely punctured; the apical three segments sparsely covered with black hair; the ventral segments fringed with white pubescence; the hypopygium very smooth and shining; its sides at the apex fringed with long, white hair.

If Bingham's fig. 127 (*l.c.*, p. 408) represents the labium of *C. dudgeonii*, then that of the species here described differs from it in the labium being much wider than the mentum, and more widely and deeply divided at the apex. The same remark applies to Smith's figure (*Cat. Hym. Ins.*, i., pl. 1., f. 1.). Bingham makes no mention of the fore wings having an appendicular cellule, nor is one indicated in his figure. In *C. dentata* the appendicular cellule is quite distinct, but open at the apex. The head and thorax are not very pubescent for a *Colletes*, but this may be through wear and tear. The wings vary in tint.

### APIDÆ.

#### *HALICTUS TORRIDUS, sp. nov.*

Long. 5-6 mm.

*Hab.* Poona (*Wroughton*).

In Bingham's table (*l.c.*, p. 421) it comes in at "*C.* Enclosed space at base of median segment with longitudinal striae. *b<sup>1</sup>.* Abdomen impunctate," which contains two species;—*H. timidus*, which differs in having the abdomen and legs rufo-testaceous, and the Burmese *H. gutturosus*, which differs in having the eyes only very slightly convergent below; while here they are very distinctly convergent below; the pubescence on the head and thorax is "thin;" here it is dense and long.

Head closely and distinctly punctured in front; the clypeus thickly covered with depressed, white pubescence; the front, vertex, and hinder parts with the hair longer, more erect, and not quite so dense; eyes distinctly converging on the lower side, the space separating them there being about half the length of the vertex; they have a distinct curve near the top on the inner side. The face, below the antennæ in the centre, projects; the projection being wider at the apex, where it is clearly separated from the clypeus, which is as long as the space between its base and

the antennæ; its sides oblique, very slightly rounded towards the apex, which is transverse; the sides of the apex rounded; not so closely punctured as the front, but the punctures are as large. Antennæ as long as the head and thorax united; black; the scape with longish, white hair; the flagellum with a close down, which is especially thick on the lower side, giving it a fuscous appearance. Thorax shining, thickly covered with long, soft, white hair; the mesonotum and scutellum with shallow, not very large punctures; the apex of the median segment with an oblique slope; the enclosed space at the base finely rugose, the sides with some nearly straight, longitudinal striae; the propleuræ almost impunctate; the mesopleuræ closely and rather strongly punctured; shining, sparsely covered with long, white, soft hair; the depression at its base wide, deep; the part above it bounded by narrow, oblique furrows, which converge slightly towards the top. Legs thickly pilose; the hair on the femora and tibiæ long and white, that on the tarsi very dense, pale golden. Wings clear hyaline; the nervures pale; the stigma darker at top and bottom; the second cubital cellule narrowed at the top; it is there half the length of the third at the top; the first transverse cubital nervure straight, oblique; the second and third curved; the first recurrent nervure is interstitial. Abdomen shining, impunctate; the apical segments sparsely covered with long, white hair. The first submedian nervure is interstitial.

ANDRENA EXAGENS Walker.

This bee, described by Walker, *Ann. Mag. Nat. Hist.*, 1860, from Ceylon, is omitted by Bingham.

SUDILA, *gen. nov.*

Head in ♀ elongate, narrower than the thorax; in ♂

broader than it, largely developed behind the eyes; the apex of the clypeus in ♂ produced into two stout teeth; the sides of the head, on the lower side behind, largely triangularly produced. Labial palpi 4-, maxillary 6-jointed; the first joint of maxillary half the length of the 2nd; the 2nd to 5th almost equal in length; the 6th a little longer. Mandibles in ♂ very large, curved, dilated towards the apex, which is itself prolonged into a long, stout tooth issuing from the middle of the dilated part; the middle with a long furrow in the centre. Labrum at top ending in a triangular point; the maxilla moderately large; the 2-5 joints almost equal in length, the 6th joint a little longer than the first. Body in ♀ and ♂ moderately, the legs densely, pilose; the claws with a stout tooth in the middle. Mesonotum with a narrow, but distinct, furrow down the sides, but not reaching the base or apex, and a less distinct, shallower furrow down the middle. Median segment without a distinct enclosed or striated space in the centre at the base. Prothorax transverse at the top, sharply raised there and at the sides. Pterostigma moderately large and elongate; the first cubital cellule somewhat longer than the second and third cellules united; the third cubital cellule narrow, not much more than half the length of the first; the first recurrent nervure almost interstitial; the second received close to the third transverse cubital nervure. Abdomen smooth and shining; the apical segments densely covered with long hair; the ventral segments densely fringed with long hair; the apical segments with a rima, as in *Halictus*.

The presence of a rima on the apical abdominal segment and the form of the alar neuration ally this genus to *Halictus*, nor is the structure of the trophi enough to separate it generically from that genus, while the ♀ again agrees with it in having an elongated face; the median segment in both sexes wants the enclosed space at the

base; so that the absence of the enclosed space on the median segment, and, more particularly, the presence of the longitudinal furrows on the mesonotum, which are not found, so far as I know, in *Halictus*, are the only points of distinction between them so far as regards the females. On the other hand the form of the head in the ♂ is so very different from what it is in *Halictus*, or indeed in any allied genus, that it cannot be included in it.

SUDILA BIDENTATA, *sp. nov.* (Pl. 4, f. 5, 5a.)

*Nigra, nitida, sparse pallide hirta; alis hyalinis.*

Long. fere 10 mm.

*Hab.* Ceylon (*Rothney*).

♂. Head shining, impunctate, sparsely covered with long, fuscous-black hair; a narrow, but distinct, furrow runs from the ocelli, which are bordered behind by a wider and deeper furrow. Mandibles piceous-red, except at the base and apex. Scape of antennæ sparsely covered with long black hairs; the base of the flagellum with short, stiff hairs; the rest of it bearing a pale down. Prothorax almost glabrous; its basal edge piceous; the mesonotum and scutella sparsely covered with long, black hairs. Median segment with a gradually rounded slope; its apex covered with long, white hairs. Mesopleuræ and mesosternum shining, impunctate, sparsely covered with long, white hairs. On the mesopleuræ, near the top, is a wide, oblique, deep furrow, which reaches near to the apex. Wings hyaline, the nervures and stigma black; the first transverse cubital nervure is oblique, straight; the second slightly, the thirdly distinctly, curved. The hair on the legs thick, longish, white on the femora, much thicker and darker coloured on the tibiæ and tarsi; the spurs and claws reddish. Abdomen very smooth and shining, the base glabrous, the apex thickly covered with long, stiff, fuscous-black hairs; the apical ventral segments thickly covered with long, fuscous hairs.

SUDILA FUSCIPENNIS, *sp. nov.*

Long. 10 mm. ♂.

Hab. Ceylon (*Rothney*).

This species differs markedly from the preceding in the form of the head; it is not so shining; the apex of the clypeus, instead of ending in the middle in two sharp teeth, has only a semicircular incision, the edges of which do not project; the lower part of the head at the sides has the projecting part not quite so lengthened, and is sharper pointed at the apex; the apex of the mandible is rounded in *S. bidentata*, here it is distinctly transverse and not so much narrowed; another marked distinction is found in the median segment; here its sides are bordered by a furrow, which is hardly visible in the other; the legs are distinctly fuscous, or rather piceous; the wings are distinctly smoky, being much darker coloured than in *S. bidentata*; the second cubital cellule is perceptibly shorter above and beneath than the third; the two being consequently together shorter than the first; the second transverse cubital nervure is straight, more oblique and more narrowed towards the first at the top.

If I had only *S. bidentata* to deal with, I should have inferred that the female described below was its female; but having two undoubted males of distinct species, I am unable to say to which of them it belongs, if indeed it may not pertain to a third unknown male. I therefore am compelled to treat it as a separate species.

SUDILA CEYLONICA, *sp. nov.* (Pl. 4, fig. 4.)

*Nigra, nitida, sterno pleurisque longe albo-hirtis; alis hyalinis, stigmata fusco, nervis nigris.* ♀.

Long. 10-11 mm.

Hab. Ceylon (*Rothney*).

Front and vertex sparsely covered with longish black hair; the front opaque, shagreened; a distinct, narrow

furrow runs down from the ocelli; the clypeus very shining, bearing some large, deep, widely separated punctures; its apex with two large, oval foveæ in the centre, and fringed with long, reddish-fulvous hair, as is also the labrum. The apex of the mandibles piceous, fringed at the base with a few long, fulvous hairs. Flagellum shining, sparsely covered with a few black hairs. Pronotum at the sides above triangular; the angles sharp; the propleuræ excavated, shining, impunctate, glabrous; the mesonotum shining, impunctate; thickly covered with fuscous hair, the hair on the sides to the tegulæ much thicker and paler; the middle towards the base with a shallow, not very distinct, furrow; and there is on either side, extending from in front of the tegulæ to the scutellum, a narrow, more distinctly defined furrow; scutellum and post-scutellum impunctate, thickly covered (especially the post-scutellum) with long, fuscous hair. The base of the mesopleuræ thickly covered with long, pale hair, the rest of it with the hair sparser. Median segment shagreened, the base without any enclosed or punctured space; sparsely haired; the apex thickly covered with long, white hair. Tegulæ very shining, impunctate. Wings hyaline; the nervures dark fuscous. Legs, especially the hinder, covered with long, white hair; the hair on the hinder tarsi very thick and long, and having a faint fulvous tinge. Abdomen shining, smooth; the base with a few scattered hairs; the apex thickly covered with long, fuscous hair; the ventral surface covered thickly with long, pale hair.

STEGANOMUS FULVIPENNIS, *sp. nov.*

Long. 7 mm.

*Hab.* Poona, Bombay (*Wroughton*).

The two new species here described may be separated

from *S. nodicornis* Sm., the only known Indian species of the genus, by the under-noted characters:—

Scape of the antennæ rufous, wings with the apex distinctly smoky; the basal area of the median segment only impunctate. *S. nodicornis.*

Scape of the antennæ black; wings not smoky at the apex; the base of the median segment impunctate.

*S. fulvipennis* and *S. gracilis.*

Black; the antennæ, except at base and apex, the femora, tibiæ, and tarsi rufo-testaceous; wings hyaline, the stigmal region slightly smoky; the stigma testaceous, the nervures at the base pale testaceous, darker towards the apex of the wings.

♂. The scape of the antennæ black, bearing long, white hair; the second joint infuscated; the flagellum almost bare, finely punctured; the terminal joint black; the fourth joint is slightly longer than the third. Head black, the front, cheeks, and clypeus densely covered with pale fulvous hair; the front very closely punctured; the vertex at the sides of the ocelli with large, clearly separated punctures; the part behind the ocelli closely punctured, the punctures slightly larger and more distinctly separated than those in front of the ocelli, and much smaller than those on the sides. The pro- and meso-notum thickly covered with short, fulvous pubescence, this being also the case with the scutellum and base of post-scutellum; the latter is minutely and closely punctured. Median segment shining, almost bare; the base impunctate, the rest with moderately large, distinctly separated punctures; the apex with an indistinct, shallow furrow down the centre. Propleuræ impunctate, slightly shagreened; bare; mesopleuræ strongly punctured, densely covered with long, pale hair; the metapleuræ sparsely covered with long, pale fulvous hair and strongly punctured. Legs fulvous; the coxæ, trochanters, and base of four anterior femora black;

the femora on the lower side fringed with white hair; the tibiæ and tarsi thickly covered with white pubescence. The first recurrent nervure is received at a slightly less distance from the base than is the second from the apex of the cellule. Abdomen black, the ventral segments more or less ferruginous, the dorsal segments with broad belts of white, depressed pubescence at their bases, all the segments strongly and closely punctured, except at their extreme bases and apices.

The ♀ has the flagellum of the antennæ black above; the abdomen above much less strongly punctured; the legs thickly covered with long, fulvous hair; and the basal abdominal segments fringed with golden hair; the apical covered densely all over with pale, golden hair.

STEGANOMUS GRACILIS, *sp. nov.* (Pl. 4, f. 16.)

Long. 6 mm. ♂.

*Hab.* Mussooree (*Rothney*).

Agrees with *S. fulvipennis* in having the base and apex of the antennæ black and the apex of the wings not smoky; but is smaller and more slender, the third joint of the antennæ is not distinctly shorter than the fourth, the median segment is impunctate, the second recurrent nervure is received at a distinctly greater distance from the apex than is the first from the base of the cellule; and the abdominal segments are very much less strongly punctured.

Antennæ slender, testaceous, the apical two joints black; the scape broadly infuscated in the middle; punctured, sparsely covered with long, white hair. Front and oral region densely covered with pale fulvous pubescence; the vertex much more sparsely covered with longer hair, uniformly, but not very strongly, punctured. Mandibles broadly ferruginous in the middle. The base and apex of the mesonotum, the scutellum and

post-scutellum densely covered with pale, fulvous pubescence; the centre much more sparsely with shorter, darker pubescence, and closely and minutely punctured. Median segment very shining, the base impunctate, the rest with minute, scattered, shallow punctures. Propleuræ impunctate, glabrous; the basal three-fourths of the mesopleuræ covered thickly with pale fulvous hair; the apex and the metapleuræ sparsely covered with long, pale fulvous hair. Legs: the coxæ, trochanters, and the greater part of the femora, black; the tibiæ and tarsi rufotestaceous; the femora sparsely, the tibiæ and tarsi very thickly covered with long, white hair, almost hiding the colour. Abdomen black, the ventral surface for the greater part ferruginous, the basal four segments closely punctured, fringed at the base with white hair; the apical segments impunctate, clothed with soft, white hair; the penultimate ventral segment is depressed in the middle, and with two large tubercles on either side. Wings hyaline, the stigma testaceous, the nervures blackish, the recurrent nervures are received about the same distance from the base and apex of the cellule.

NOMIA AUREOHIRTA, *sp. nov.* (Pl. 4, f. 7.)

Long. 10 mm. ♂.

*Hab.* Poona (*Wroughton*).

In Bingham's table (*I.c.*, p. 448), this species comes into *b. a.<sup>2</sup>* and into a new section *C<sup>4</sup>*:—Enclosed space at base of median segment transversely striated. In the form of the hinder femora in the ♂ it resembles *N. fervida*; but the form of the tibiæ is different; in *N. fervida* it is broadly dilated in the middle; in the present species there is no dilatation, but a gradual curve from the base to the apex; the under side of the femora also is straight to the keel, while in *N. fervida* the base is curved inwardly and the middle dilated slightly.

Head below the antennæ thickly covered with moderately long, golden pubescence; the front and the occiput thickly with longer, dark fulvous hair; the vertex rugosely punctured, sparsely covered with darker hair. Mandibles on the lower side with some long, fulvous hairs; black, piceous near the apex; the hinder orbits thickly covered with pale fulvous hair. Antennal scape lemon-yellow; thickly covered with long, fulvous hairs; the flagellum punctured, rufo-fulvous, darker above. The collar covered with depressed, yellow pubescence, behind fringed with long, dark fulvous hair; the mesonotum and scutellum thickly covered with a short, depressed, dark fulvous pile completely hiding their texture; the post-scutellum with a similar covering, but longer, and intersected with some fuscous hairs. The basal area on the median segment triangularly dilated in the middle at the apex; the middle at the apex with some short, transverse striae; the sides obscurely striated. Mesopleuræ thickly covered with fulvous hair; more sparsely at the apex, perhaps through being rubbed; the metapleuræ covered with long, fulvous hair above. Legs, except the coxæ and trochanters, lemon-yellow; the femora and tibiæ at the base suffused with ferruginous; the fore tarsi fringed behind with long, pale fulvous hair; the hind femora semicircularly curved above, straight on the lower side, and with a small, oblique tooth near the apex; the tibiæ produced, at the apex in front, into a somewhat triangular projection which is gradually widened from the base of the tibiæ to the apex, the apex itself being rather acute. Wings with a fusco-fulvous tinge, darker at the apex; the stigma obscure fulvous; the second cubital cellule at the top about two-thirds of the length of the top of the third; the first recurrent nervure is received in the apical third of the cellule. The basal segment of the abdomen, broadly at the apex, and the second and third segments, in the

middle, thickly covered with fulvous hair; the apices of the first to fourth segments with a broad band of rich fulvous, depressed pubescence; the two apical segments thickly covered with long, pale fulvous hair. The ventral segments fringed at the apex with pale hair; the last deeply depressed in the middle, and having there a stout triangular projection.

*NOMIA ERYTHROGASTER*, *sp. nov.* (Pl. 4, f. 10.)

Long. 9-10 mm. ♂.

*Hab.* Poona (*Wroughton*).

Comes into Bingham's Section A (*l.c.*, p. 448). "a. Scutellum armed with two spines or teeth posteriorly," and "b<sup>1</sup>. Abdomen beneath and posterior legs rufotestaceous," which is now subdivided:—

Apex of post-scutellum distinctly bidentate; the second cubital cellule not one-half the length of the third on the top. Length, 7-8 mm. *N. westwoodi*.

Apex of post-scutellum not distinctly bidentate; the second cubital cellule more than one one-half the length of the third on top. Length, 10 mm. *N. erythrogaster*.

Head in front from near the ocelli thickly covered with white hair, that over the antennæ being much the longer; the vertex closely, but not deeply, punctured. Mandibles obscure ferruginous before the apex. The centre of the clypeus with a narrow keel; above this is a stouter keel reaching to the antennæ. Scape of antennæ covered above with long, white hair; the flagellum obscure brownish beneath. Mesonotum uniformly covered with shallow punctures; alutaceous; the base, sides, and apex thickly covered with white hair; the scutellum similarly punctured to the mesonotum, but with the punctures somewhat larger; the apex with the middle slightly depressed; post-scutellum thickly covered with white hair; the apex armed with two large, flat, slightly con-

verging teeth, which project backwards and are a little narrowed at the top. The basal area on the median segment long and narrow, bearing stout, longitudinal keels, widely separated in the middle, closer together at the sides. The sides of the median segment are strongly, but not closely, punctured, and covered with long, white hair. Pleurae rugosely punctured, thickly covered with white hair. Wings hyaline, the costa and nervures fuscous; the second cubital cellule at the top half the length of the top of the third; the recurrent nervures are received in the apical third of the cellules. Legs thickly covered with white hair; the hind femora and tibiae red, except the apex of the femora above, which is black; the hind femora dilated above; the apex of the hind tibiae gradually dilated to the apex, the dilation a little longer than broad, transverse at the apex, with the sides rounded. Abdomen shining, impunctate, marked with four greenish blue belts; the ventral surface, except at the apex, rufous; the apex of the segments pale, thickly fringed with white hair.

*NOMIA PURPUREO-LINEATA, sp. nov.* (Pl. 4, f. 15.)\*

Long. 10 mm. ♀.

*Hab.* Barrackpore (*Rothney*).

In Bingham's table (*I.c.*, p. 458), this species fits into “*b, b<sup>1</sup>*. Thorax with griseous or white pubescence,” and “*a<sup>3</sup>*. Clypeus with a medial vertical furrow,” which now stands as follows:—

Clypeus coarsely punctured; abdominal segments 2-4 with blue or green transverse lines, wings hyaline.

*N. iridescens* Sm.

Clypeus coarsely longitudinally striated; abdominal segments 1-5 with purple transverse lines; wings deeply fuscous except at extreme apex. *N. purpureo-lineata*.

\* This group (that of *N. chalybeata* Sm.) forms the sub-genus *Paranomia* Friese.

Antennæ black; the flagellum obscure brownish beneath, bare; the scape with a few long, white hairs. Face elongate; keeled down the middle of the clypeus, closely longitudinally striated from the antennæ to the apex of the clypeus; the labrum smooth, shining, fringed at the apex with long, golden hair. Mandibles entirely black; the base with some long, white hairs. Front and vertex closely punctured; the sides, behind the antennæ, thickly covered with short, pale golden hair. Mesonotum alutaceous, closely punctured; an indistinct furrow down the sides; the scutellum punctured like the mesonotum, slightly depressed in the middle. Post-scutellum thickly covered with pale fulvous pubescence. The basal area on the median segment extending from side to side; sharply keeled at base and apex; irregularly longitudinally striolated; the segments from the area thickly covered with long, pale fulvous hair, and bearing large shallow punctures. Pleuræ shagreened; the mesopleuræ punctured, thickly covered with long, pale fulvous hair. Legs entirely black, except the claws, which are piceous; thickly covered with pale pubescence. Wings fuscous, tinged with fulvous; the costa and stigma black; the nervures fuscous; the second cubital cellule hardly narrower at top than at bottom; at top slightly more than one-half the length of the top of the third; the first recurrent nervure is received quite close to the transverse cubital. Abdomen shining, very minutely punctured; all the segments with a smooth belt of purple at their apices; the base of the petiole covered with longish, pale golden hair; the others at the base sparsely covered with long, black hair. Ventral segments obscure brownish; shining, the apices of the segments pale.

A very distinct species, easily separated by the violaceous bands on the abdomen and by the fuscous wings.

NOMIA LATISPINA, *sp. nov.* (Pl. 4, f. 11 ♀, 11a. ♂.)

Long. 7 mm.

*Hab.* Allahabad (*Rothney*).

Comes into a new section on foot of p. 448 (*I.c.*);  
C<sup>4</sup>. Enclosed space at base of abdominal segment smooth,  
neither punctured nor striated ; apices of abdominal seg-  
ments strongly punctured.

Head narrow, sharply oblique behind the eyes ; the front and vertex with large, widely separated punctures ; the front thickly, the vertex more thinly, covered with fulvous hair ; the face and clypeus thickly with shorter, cream-coloured pubescence ; the apex of the clypeus bare, rather strongly punctured ; the mandibles shining, broadly rufous in the middle. Antennæ entirely black, except the flagellum on the under side, which is brownish ; the scape bearing long, white hair. Thorax sharply transverse in front ; the mesonotum thickly covered with depressed, scale-like, fulvous hair ; the scutellum with only a few hairs ; the post-scutellum covered thickly with long, pale fulvous hair. Mesonotum closely, rather strongly and uniformly punctured ; the scutellum with the punctures, if anything, larger, and more widely separated. Median segment shining ; the sides and apex with a few pale golden hairs ; the basal area smooth, impunctate, triangular ; the rest of the segment bearing large, deep, distinctly separated punctures. Meso- and meta-pleuræ thickly covered with pale fulvous hair. Legs black ; the anterior tibiæ and base of tarsi rufous in front ; the hinder tibial spine and metatarsus white ; the hinder tibial process reaching to the apex of the metatarsus, very broad, not much narrowed towards the apex, which is rounded. The hinder tibiæ with a distinct, narrow keel down the middle on the outer side ; the hinder femora largely dilated, becoming wider to near the apex, which is oblique on their under side ; in the middle, near the apex, is a small

triangular tooth. Wings hyaline, the stigma and nervures black; the second cubital cellule small, shorter than broad; the first transverse cubital nervure straight; the second roundly curved, interstitial with the recurrent nervure. Abdomen shining, strongly punctured; the punctures large and deep on the basal three segments; the apex of the basal segment with long, fulvous hair; the base of the second, third and apical segments entirely covered with grey pubescence.

The form of the ♂ hind legs resembles that of *N. chalybeata* Sm. as figured by Smith (*Trans. Ent. Soc.*, 1875, pl. 11, f. 5).

*NOMIA FULVOHIRTÀ, sp. nov.* (Pl. 4, f. 9.)

Long. 12 mm. ♂.

*Hab.* Allahabad (*Rothney*).

Comes into Bingham's Section (*l.c.*) "A. b. Post-scutellum unarmed posteriorly.  $\alpha^1$ . Thorax with more or less fulvous pubescence," consisting of *N. curvipes* Fab., the ♂ of which differs in having the hinder femora "rufopiceous, with their apical-half yellow," here black, yellow at the apex, and the hinder tibiæ are broadly black at the base; *N. chalybeata* differs from it in having the femora not so much swollen nor toothed; *N. varipes* Cam. agrees with it closely; but may be separated by the rufous, not black, base of the hinder femora and by their having only one large tooth.

Head, except on the sides of the vertex, densely covered with long, fulvous hair; the vertex, except near the ocelli, bearing rather large, distinctly separated, punctures; the base of the mandibles yellow, the middle piceous, the apex black. The scape of antennæ yellow, except on the apex above; the flagellum fulvous, black above to near the apex. Thorax densely covered with long, fulvous hair; the basal area of the median segment

bearing stout, longitudinal keels. Legs yellow, thickly covered with fulvous hair; the coxae, trochanters, the basal three-fourths of the four anterior femora and the basal half of the posterior femora, black; the hinder femora largely thickened; on the lower side near the apex are two stout teeth, separated by a semicircular space, the inner tooth being the larger; the teeth are black, as is also the under side of the femora. Hinder tibiae greatly dilated towards the apex, ending there in a large curved, triangular tooth. Wings hyaline, with a slight fulvous tinge; the apex, from the radial cellule, infuscated; the costa, stigma and nervures fulvous; the second and third cubital cellules at the top are equal in length. The basal segment of the abdomen black; the apex greenish-yellow; strongly punctured; the base at the sides covered with short, the middle with long, fulvous hair; the second and third segments black, the apices greenish-yellow; the other segments greenish-yellow; the base of all the segments covered with fulvous pubescence; the apices glabrous; the ventral segments castaneous.

NOMIA VARIPIES, *sp. nov.* (Pl. 4, f. 8.)

Long. 10 mm. ♂.

*Hab.* Allahabad (*Rothney*).

In Bingham's table (*l.c.*, p. 448), this species comes into "A. Abdomen with non-pubescent transverse fasciae," and "b.  $\alpha^1$ . Thorax with more or less fulvous pubescence," " $\alpha^2$ . Legs rufo-fulvous or ferruginous," presently represented by *N. chalybeata* Sm. and *N. curvipes* Fab., from either of which it is very different; from *N. chalybeata* by the abdomen not having blue-green fasciae and by the spined femora; from *N. curvipes* by the femora having a large projecting tooth and not a semicircular incision, and by the apical projection on the hinder tibiae being broader and blunter, not ending in a sharp curved tooth.

The form of the hinder femora and tibiæ most nearly resembles those of the Indian *N. combusta* and the African *N. calida*, but otherwise it is very distinct. The femora are formed pretty much as in *N. chrysopa*, but otherwise there is no resemblance.

Head black; front and vertex strongly punctured; sparsely covered with short, fuscous hair; a smooth furrow runs down from the ocelli; the face and clypeus densely covered with pale golden pubescence; the base of the clypeus yellow, the middle rufous, the apex black. The scape of the antennæ yellow, rather thickly covered with long, white hair; the flagellum rufous, slightly darker in the middle above. Pro- and meso-notum with the scutellum thickly covered with short, dark fulvous pubescence, and strongly and uniformly punctured; the median segment thickly covered with long, pale fulvous hair; the base with a row of stout, straight, short keels. Mesopleuræ thickly covered with pale fulvous pubescence; the metapleuræ at the base and apex fringed with long, pale fulvous hair. Wings hyaline; the apex distinctly smoky; the costa, stigma, and nervures fulvous; the second cubital cellule at the top equal in length to the top of the third; the first recurrent nervure is received near the apical fourth; the second in the apical third of the cellule. Legs yellow; the coxæ and trochanters black; the four anterior femora for the greater part above; and the basal two-thirds of the hinder femora ferruginous; the hinder femora large, broadly rounded above; the base, before the tooth, straight; the tooth oblique, directed towards the apex; the outer side of the apex of the hinder tibiæ curved; the inner projecting, in width not much less than half of the outer; its apex oblique, the inner side rounded; near the base of the hinder tibiæ on the posterior side is a large, black, oval mark, brownish on the outer edge. Abdomen shining, black; the apex of the basal segment covered

thickly with depressed, fulvous pubescence ; the apices of the first and fourth segments broadly fulvous-yellow ; the apical segments entirely of that colour ; the apical segment thickly covered with long, golden hair ; the ventral segments black.

NOMIA MAHRATTA, *sp. nov.*

Long. 8 mm. ♀.

*Hab.* Bombay (*Wroughton*).

In Bingham's table (*l.c.*, p. 449), this species comes into "b". Thorax above with thin cinereous pubescence" which is now divided into :—

1. Area at base of median segment finely reticulate ; the legs rufo-testaceous ; the pubescence on the ventral segments cinereous. *N. aurata*.

2. Area at base of median segment finely longitudinally striated ; only the hinder tibiæ and tarsi rufo-testaceous ; the pubescence on the ventral segments dense, ferruginous.

*N. mahratta*.

Head, from a little above the antennæ, thickly covered with white pubescence ; the apex of the clypeus fringed with long, golden hair. The mandibles, before the middle, piceous ; the front and vertex impunctate. Antennæ rather slender, black, the scape almost bare ; the apical joint rufous. Thorax thickly covered with longish hair ; fuscous in colour above, almost white on the sides ; the mesonotum opaque, finely rugose, almost transversely striated ; the scutellum shining, bearing shallow, scattered punctures, and sparsely covered with long, fuscous hair ; the post-scutellum thickly covered with white pubescence. Median segment with an abrupt, oblique slope ; opaque, finely and closely shagreened ; the base with the area not clearly limited, and closely longitudinally striolated ; the furrow on the apical half wide and deep at the base. Propleurae shining, coarsely aciculated ; the mesopleurae at the tubercles thickly covered with white pubescence ;

the metapleuræ covered with long, white hair. Legs black; the hinder tibiæ and tarsi rufous; the coxæ and femora covered with long, white hair; the tibiæ and tarsi more thickly covered with shorter hair; the hair on the hinder tibiæ being longer and thicker; the claws rufous. Wings hyaline, the apex slightly infuscated; the second cellule scarcely half the length of the top of the third; the costa and stigma black; the nervures fuscous; the second recurrent nervure is received the length of the second cubital cellule from the apex of the third cellule. Abdomen shining, impunctate; the base and sides of the basal segment covered with long, white hair; the sides and apices of the other segments fringed with white pubescence; the ventral segments thickly covered with dark rufous hair.

The antennæ in this species are more slender and the ventral surface of the abdomen more thickly pilose than usual, e.g., than in *N. elliotti*.

NOMIA CHRYSOPA, *sp. nov.* (Pl. 4, f. 13.)

Long. 6 mm. ♂.

*Hab.* Allahabad (*Rothney*).

In the Key (*I.c.*, p. 449) it forms a new group of the species with the abdominal fasciæ white; “*b<sup>4</sup>*. Enclosed space at base of median segment, with stout, oblique keels,” not punctured as in *N. oxybeloides*, nor obscurely transversely striated as in *N. rustica*.

Head black; from shortly above the base of the antennæ, thickly covered with golden pubescence, behind the eyes with longish, white pubescence; the vertex with longish, fuscous hair, longer and paler behind. Front and vertex closely and strongly punctured, except a small, smooth spot outside the hinder ocelli. Mandibles black; bearing at the base long, pale fulvous hair. The scape

yellow; the flagellum yellowish-ochraceous beneath; blackish above; the flagellum bare; the scape with long, pale hair. The edge of the pronotum on the top covered with a distinct line of dirty-yellow, depressed pubescence, in front of which is a narrow belt of long, pale hairs. Mesonotum closely and somewhat strongly punctured, opaque; sparsely covered with short, fuscous pubescence; the post-scutellum covered with longer, stiff, pale hair on the top. The "enclosed space" on the base of the median segment shining; distinctly margined behind: and having stout, slightly oblique, widely separated keels; the median segment with an oblique slope; rugose, obscurely reticulated at the top, and indistinctly keeled down the middle. Mesopleuræ thickly covered with long, pale fulvous hair. Legs bright lemon-yellow; the coxæ and trochanters black; the base of the femora broadly black, tinged with brown; a brownish mark on the outer and inner side of the hinder tibiæ; the hinder femora have, shortly beyond the middle, a large, oblique, triangular tooth; the hinder tibiæ gradually dilated to the apex, which ends on the inner side in a large, triangular tooth. Wings hyaline, slightly infuscated, especially towards the apex. Abdomen black, the apex of the basal three segments with a belt of white, depressed pubescence; the apical three covered entirely with similar pubescence; the first and second segments coarsely punctured; the third and fourth finely and closely punctured; the last rufous round the apex; the apices of the basal three segments covered with long, white hair, as is also the apical segment.

The form of the hind legs is not unlike those of *N. combusta*, with which it otherwise is closely related; but the shape of the femora serves to separate them; in *N. combusta* they are roundly curved before the tooth; in *N. chrysopa* they are perfectly straight, not curved in any way.

NOMIA MACULITARSIS, sp. nov. (Pl. 4, f. 12.)

Long. 8 mm. ♂.

Hab. Poona (*Wroughton*).

Agrees with *N. floralis* Sm. and *N. pilipes* Sm. in having the base of the abdomen red; only the females of these two species are known, but it can hardly be the ♂ of either of them. It comes nearest in those characters common to both sexes to *N. floralis*, from which it may be separated as follows:

Median segment with a median vertical keel, the area at base densely punctured; the legs rufo-piceous.

*N. floralis* Sm.

Median segment without a median vertical keel, the basal area distinctly striolated; the legs black, the tarsi rufous.

*N. maculitarsis*.

*N. pilipes* Sm. has the basal two and the basal two-thirds of the third abdominal segments pale-red, and the basal area of the median segment is "very coarsely punctured."

The head in front from shortly below the ocelli densely covered with fulvous hair; the front and vertex shining, impunctate. Mandibles black, striated; the striæ curved at the top. The propleurae shining, impunctate, the apex only covered with long, white hair; the meso- and meta-pleurae thickly covered with long, white hair. Wings hyaline, the costa, stigma, and nervures pale fuscous; the second cubital cellule at the top not half the length of the third at the top; the first recurrent nervure is received shortly beyond the middle of the cellule. Abdomen shining, the base and the sides covered with white hair; the basal segment entirely red, closely and finely punctured; the base and sides of the second rufous, the rest of it piceous; the apices of the second and following segments smooth, silvery white; the ventral surface entirely red. Legs black, the tarsi pale rufous, the hinder

infuscated towards the apex ; the hinder femora triangularly dilated above, below straight, except for a slight, blunt, somewhat triangular projection near the base ; the apex of the hinder tibiæ ends in a stout triangle, which behind is prolonged into a stout, roundly curved process, rounded at the end and piceous at the base of the apical tooth ; sparsely covered with long, pale fulvous hair ; the outer orbits bearing long, white hairs, which are longer and more numerous on the lower part. The scape and second joint of the antennæ entirely black ; the flagellum fulvo-brownish, blackish above ; the scape with a few fuscous hairs ; the flagellum bare. The pro- and part of meso-notum densely covered with long, fulvous hair ; the rest of the mesonotum with shorter hair ; in the middle of the mesonotum are two narrow furrows ; near the sides, opposite the tegulæ, is a slightly wider and deeper furrow ; the scutellum is sparsely covered with very long, pale hair ; the post-scutellum covered with white, woolly pubescence, and bearing also some long, white hairs ; the mesonotum is closely, but not very strongly, punctured ; the scutellum impunctate. The median segment is rounded at the base, semiperpendicular at the apex ; punctured, but not strongly ; the sides and apex covered with long, soft, white hair ; the basal area strongly obliquely distinctly margined on either side, the hinder trochanters are rufous ; the femora are sparsely covered with long, the tibiæ and tarsi thickly with short, white pubescence.

NOMIA (?) ALIENA, *sp. nov.* (Pl. 4, f. 14.)

Long. 7 mm. ♀.

*Hab.* Poona (*Wroughton*).

The undenoted species comes into Bingham's Section B. of *Nomia*, having the abdominal segments fringed with hair ; but it differs from all the species in the prothorax having in front of the tegulæ a curved, thin, horn-like,

semitransparent projection, extending equally on both sides of the tegulae. Behind the eyes there is a sharp keel extending their entire length, and separated from them by a clear space.

Head as wide as the mesothorax ; the front and vertex coarsely punctured, sparsely covered with short, fuscous hair ; the centre below the antennæ shining, its middle almost impunctate ; the base and apex with large, deep, widely separated punctures ; the part next the eyes closely rugosely punctured, almost longitudinally striated. Clypeus with large, deep punctures, except near the eyes, where the punctures are smaller and closer. Labrum fringed with long, fulvous hair. Mandibles black, piceous at the apex ; the base opaque, finely striated ; with one large apical, and a smaller subapical tooth. Scape of antennæ fringed with longish pale hair above ; the flagellum brownish beneath towards the apex. Pro- and meso-notum and scutellum shining, smooth ; the mesonotum with three shallow furrows in front ; the apex of the scutellum with a row of shallow, large, round punctures ; the post-scutellum covered with white pubescence. Median segment with an oblique slope at the apex ; without any basal area, but with a faint indication of two converging furrows. The mesopleuræ coarsely punctured at the base ; the apex with a broad clearly defined space, broad at the top, gradually narrowed to the bottom, and bearing stout, longitudinal, distinctly separated keels. Metapleuræ shining, uniformly marked with shallow punctures and with a broad, shallow furrow at the base. Wings hyaline, the costa, stigma and nervures testaceous ; the second cubital cellule is of nearly equal width, and scarcely one-half the length of the top of the third cellule ; the first recurrent nervure is interstitial ; the second received at the end of the second cellule, the transverse cubital nervure turning up sharply obliquely from it,

and not continued in a straight, or but slightly oblique, line from it as usual. In the hind wings, the nervures are not continued to the end of the wings. Legs densely covered with long, pale or pale fulvous hair; the hinder tarsi have the basal joint dilated above and compressed; the second joint is obliquely dilated above, both more so than usual.

NOMIA (?) INTERSTITIALIS, *sp. nov.*

*Nigra, flagello antennarum rufo; alis hyalinis, nervis stigmatque nigris.* ♂.

Long. 7.5 mm.

*Hab.* Allahabad (*Rothney*).

Scape of antennæ black; sparsely covered with long, white hair; the flagellum almost bare, infuscated above towards the apex. Face and clypeus sparsely covered with long, white hair. Clypeus finely punctured, finely longitudinally striated; the anterior ocelli with a curved furrow in front; behind them is a narrow  $\sim$ -shaped one. Mandibles at the base covered sparsely with long, white hairs. Thorax above with short, fuscous pubescence; sparsely and shortly pilose; the hair on the scutellum longer; the basal area on the median segment large, closely and finely longitudinally striated, and bordered by a rather deep furrow, which is continued down the middle of the segment. Pleuræ densely covered with short pubescence. Wings short, reaching only to the fourth abdominal segment; the second cubital cellule small, shorter than broad; above one-half the length of the third; the first recurrent nervure is almost interstitial; but received nearer the base than the apex of the nervure; the second is received the length of the second cellule from the apex of the third. Legs black; the calcaria white; the coxæ thickly, the femora sparsely, covered with long, white hair; the tibiæ and tarsi very thickly with shorter, white hair;

the hair on the under side of the metatarsus rufous; the apex of the tarsi rufous. The femora and tibiæ are normal, not dilated, except that the hinder tibiæ on the inner side are triangularly produced, but not sharply, the apex being rounded. Abdomen shining, impunctate; the base of the segments belted with white, depressed pile; the second to fourth segment with wide transverse furrows near the base; the ventral segments smooth, shining; their apices fringed with short, white hair; the sides of the third and fourth with long, white hair; the penultimate segment broadly depressed in the middle, with a smaller, somewhat pear-shaped, depression on either side at the apex.

This is perhaps not a true *Nomia*. The trophi do not differ in form from those of that genus. The only point in which the legs agree with those of *Nomia* is in the projecting apex of the hinder tibiæ. It differs in the interstitial first recurrent nervure and in the shorter wings.

MEGACHILE NIGRICANS, *sp. nov.*

*Nigra, capite thoraceque pallide hirtis; alis hyalinis.* ♂.

Long. 11 mm.

*Hab.* Trincomali, Ceylon (*Verbury*).

In Bingham's Key (*l.c.*, p. 471) it comes in "A. Abdomen black, with entirely black pubescence above," and "C. wings hyaline," which only contains the ♂ of *M. anthracina*, a very different species from *M. nigricans*, being much larger, the pubescence on the face bright fulvous, the fore legs more or less rufo-testaceous, the wings infuscated at the apex, the fore legs spined, &c.

Entirely black, the wings hyaline, the costa and nervures fuscous, darker at the base. Head below the ocelli thickly covered with long, pale, behind the ocelli more sparsely with longish, black, hair; front and vertex strongly punctured, except a smooth, shining space on the outer side of the hinder ocelli; the clypeus strongly

punctured; the labrum fringed with long, pale hair. Mandibles black, shining, the base covered with long, fuscous, intermixed with shorter, silvery hair; their apices shining, armed with one large, somewhat triangular, tooth at the apex; the base strongly punctured. Antennæ short, black, the apical half dull rufous on the under side; the scape with a few short hairs; the flagellum bare, shining. Pro- and meso-notum thickly covered with longish hair; longer and paler on the pronotum; closely rugose; the scutellum, if anything, more strongly rugose and with the hair longer; the median segment with a perpendicular slope, thickly covered with long, pale hair. Pleuræ thickly covered with long, black hair; the lower part of the mesopleuræ excavated, shining; the lower part of the metapleuræ smooth. Abdomen shining, pilose, the segments fringed with white hair; the ventral surface thickly covered with longish, stiff, blackish hair. Femora sparsely; the tibiæ and tarsi very thickly covered with long, black hair; the fore coxæ simple, not spined.

#### TETRALONIA.

Under this generic name Bingham describes two species—*T. duvancelii* Lep.=*elegans* Sm., and *T. himalayensis* Bing. In these two species the maxillary palpi are said to be 6-jointed. Whether this is an original observation, or merely copied from Smith (*Cat. Hym.*, ii., p. 297), who also gives six joints to the maxillary palpi of *Tetralonia*, I am unable to say. Apart from the difference in the number of palpal joints, my species agrees in the other generic characters with *Tetralonia* as given by Bingham. In both the species here described the maxillary palpi have only four joints, as have also the labial. Latreille, who first described *Tetralonia*, gives five as the number of joints in the maxillary palpi, this being likewise the number in Smith's genus *Xenoglossa*. Mr. W. H. Patton

(Generic Arrangement of the Bees allied to *Melissodes* and *Anthophora*. *Bull. U.S. Geol. Surv. Territ.*, v., p. 471) gives also five joints for *Tetralonia*, but it is not clear to me if he has himself examined the genus or gives a quotation from Latreille. *Melissodes* Latr. is described in full by Patton (*l.c.*, p. 472); it has, like our species, 4-jointed maxillary palpi, "the fourth joint often minute," which does not conform to our Indian species any more than does his description of the first joint of the labial palpi being twice the length of the second. In other respects our species do not quite fit into Patton's diagnosis. Further, they do not agree with each other in the form of the palpi. For those species with 6-jointed maxillary palpi, Patton established (*l.c.*, p. 473) the genus *Synhalonia*, representing *Macrocera* Lep., *Tetralonia* Sm., and *Melissodes* Cresson, *nec* Latr.; but it can hardly be regarded as generically identical with our species. Taschenberg (*Berl. Entom. Zeits.*, xxvii., p. 78) groups the genera under *Macrocera* (an inadmissible name, being preoccupied in *Diptera*); *Melissodes* Latr. with 4-jointed maxillary palpi; *Macrocera* sen. str. with them 5-jointed; *Xenoglossa* Sm. with them also 5-jointed; *Synhalonia* with them 6-jointed and *Ancyloscelis*, of which the palpal characters are not given, but which is treated by Smith (*Cat. Hym.*, ii., p. 365) as a doubtful synonym of *Tetrapedia* Klug, a very different genus from *Tetralonia*. As Mr. Rothney's ♀ differs in many respects from Mr. Wroughton's male and from the described genera, I give a generic description of it here, leaving it for further investigation to decide whether the points of difference in the palpal and other characters are of generic, sub-generic, or of mere specific importance.

♀. Antennæ shorter than the thorax; ocelli :. Mandibles without teeth. Tongue not elongate, if anything shorter than the palpi; the apex ending in a button; paraglossæ a little longer than the tongue; densely pilose;

the two basal palpal joints greatly enlarged and thickened; the basal slightly longer than the second; the apical two joints of nearly equal length. The stipes longer and broader than the galea by about one-fourth; the top on the inner side rounded inwardly and fringed with long, stout, stiff hairs; the first and third joints of the palpi are nearly equal in length; the fourth is slightly shorter; the second is the longest. Wings very short, not reaching to the apex of the second abdominal segment; the two recurrent nervures received quite close to the transverse cubital nervures. Fore wings with three cubital cellules; the third at the top scarcely so long as the second; at the bottom nearly twice its length. Legs densely pilose; the hinder tibiae and tarsi densely covered with long hair; the calcaria simple, of nearly equal length; the claws with a stout tooth near the base. Abdomen not densely pilose; the apical segment with a large, smooth, glabrous area in the middle, somewhat triangular in shape, but with the apex rounded.

TETRALONIA BREVIPENNIS, *sp. nov.* (Pl. 4, f. 6, 6a, b.)

*Nigra, flagello antennarum rufo; pedibus longe pallide pilosis; alis brevibus, costis, stigmate nervisque testaceis.* ♀.

Long. 9; exp. at 6 mm.

*Hab.* Allahabad (*Rothney*).

Antennae black; the flagellum from its second joint rufous beneath; bare; the scape with a few short, black hairs. Head strongly punctured; the clypeus more strongly than the front; the sides of the vertex much more finely; the occiput fringed with long, erect, white hair above; the front and vertex with short, the sides of the clypeus with much longer, white hair. The apex of the clypeus distinctly marginated, ferruginous. Mandibles rufous in the middle and fringed with long, fulvous hair on the lower side. Mesonotum and scutellum closely punc-

tured; the median segment at the apex with a steep, oblique slope; the base strongly and closely punctured; the apex with the sides less strongly punctured; the middle impunctate; the apex at the sides thickly covered with long, white hair. Legs thickly covered with long, pale fulvous hair; the floccus very long and thick; the metatarsus greatly enlarged, very thickly haired; the hair mixed with stiff spines. Wings reaching not much beyond the middle of the second abdominal segment; the second cubital cellule at top not much longer than the third at the top; the first recurrent nervure is received near the transverse cubital; the second is interstitial. The first transverse basal is received before the basal, not joined to it. The basal segment of the abdomen is covered with long, white hair, almost bare in the middle at the apex, perhaps through being rubbed; the second, third and fourth covered with white, depressed pubescence; the fifth thickly with fulvous pubescence; the middle area on the last segment smooth, glabrous; the sides of the segment thickly covered with fulvous pubescence. The bases of the ventral segments covered with white pubescence; the apices of the three basal segments brownish; the hypopygium bare, sharply separated from the sides by a deep depression.

TETRALONIA PUNCTATA, sp. nov.

Long. 8-9 mm.

Hab. Poona (*Wroughton*).

In Bingham's key (*l.c.*, p. 520) *T. punctata* will come in as follows:—

Clypeus yellow.

Clypeus "very lightly punctured." *T. duvancelii* Lep.

Clypeus very strongly punctured all over. *T. punctata*.

Antennæ rufo-testaceous; bare, the basal joint black. Head black; thickly covered with long, whitish hair,

except behind the ocelli ; the clypeus and labrum lemon-yellow ; the clypeus strongly and uniformly covered with large, shallow punctures, its apex almost transverse ; the labrum punctured like the clypeus, but not quite so strongly, thickly fringed with long, white hair. Mandibles for the greater part ferruginous, black at the base, with a yellow mark in the centre. Thorax thickly covered all over with long, pale fulvous hair ; the tegulæ yellow. Wings hyaline, the costa and stigma rufo-testaceous ; the second and third cubital cellules almost equal in length at the top ; the second at the bottom hardly one-half the length of the third. Legs thickly covered with pale hair ; on the under side of the tarsi with rufous hair ; the apical joints of the tarsi being rufous ; the calcaria pale. Abdomen black ; the basal segment thickly covered with long, pale hair ; the second and third segments with a broad belt of depressed fulvous down on their base ; the fourth and fifth covered entirely with pale, fulvous pile, the apical segments with the pubescence rufous, not pale fulvous ; the ventral segments fringed with pale fulvous hair ; the texture of the pygidium is hidden by the pubescence ; the hypopygium is smooth, bare, the base black, the rest ferruginous.

The ligula is elongated, extending considerably beyond the palpi, is stout and densely haired ; the paraglossæ are also hairy and are slightly longer than the palpi ; the basal joint of the palpi is about one-half longer than the second ; the apical two minute, the last shorter than the preceding. The second joint of the maxillary palpi is the longer, the rest subequal.

ANTHOPHORA CELLULARIS, *sp. nov.*

Long. 7-8 mm. ♂.

Hab. Poona (*Wroughton*).

In the table (*l.c.*, p. 525) this species comes in at

"*b<sup>2</sup>*. Abdomen beneath black," which will now be subdivided into :—

Clypeus bimaculate; the second and third cubital cellules subequal. *A. confusa* Sm. and *A. fallax* Sm.

Clypeus immaculate; second cubital cellule not one-half the length of the third. *A. cellularis*.

Head black, the vertex and front closely, but not strongly, punctured; the cheeks impunctuate; the clypeus with some large, widely separated, punctures; the clypeus, a somewhat triangular mark above it, the sides from a little above the base of the antennæ, dilated in the middle to meet the upper mark, the labrum and the base of the mandibles, yellow; the mandibles piceous, intermixed with black. The front and vertex and the outer orbits thickly covered with long, griseous hair; the clypeus bearing a sparse pubescence; the labrum fringed with long, white hair. The scape of the antennæ yellow beneath; the flagellum brownish. The pro- and meso-notum thickly covered with short, dark griseous hair; the scutella with much longer white, the sides of the median segment and the pleuræ with long, white hair; the median segment closely punctured; the pleuræ are much more strongly punctured; the lower part of the meta-pleuræ obscurely longitudinally striated. The outer sides of the tibiæ and tarsi thickly covered with long, white hair; the metatarsus thickly covered on the inner side with long, bright rufous hair; the claws rufous. Wings hyaline; the stigma and nervures blackish; the second cubital cellule at top and bottom hardly one-half the length of the third; at the top it is half the length it is at the bottom; the first recurrent nervure is received near the middle of the cellule; the second distinctly in front of the third transverse cubital nervure, and not interstitial as it is with *A. fallax*, &c. Abdomen shining,

closely but not strongly punctured; the first to fifth segments banded with white pubescence, the last closely and strongly punctured above, the apex rufous; the hypopygium dark rufous, the middle carinate; the sides fringed with long, white hairs, the third to fifth ventral segments fringed with long, white hairs; the basal segments piceous.

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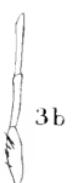


## EXPLANATION OF PLATE.

Fig. 1. *Mutilla indecora*, ♀.  
 „ 2. *Passaloecus reticulatus*, ♀.  
 „ 3. *Pterochilus fulvipennis*, ♂. 3a, labial; 3b, maxillary palpus.  
 „ 4. *Sudila ceylonica*, ♀.  
 „ 5. „ *bidentata*, ♂. head from the front; 5a from the side.  
 „ 6. *Tetralonia brevipennis*, ♀. 6a, maxillary; 6b, labium and palpi.  
 „ 7. Hind leg of ♂ *Nomia aureohirta*.  
 „ 8. „ ♂ „ *varipes*.  
 „ 9. „ ♂ „ *fulvohirta*.  
 „ 10. „ ♂ „ *erythrogaster*.  
 „ 11. „ ♀ „ *latispina*, and 11a ♂.  
 „ 12. „ ♂ „ *maculitarsis*.  
 „ 13. „ ♂ „ *chrysopa*.  
 „ 14. *Nomia aliena*, ♀.  
 „ 15. „ *purpureo-lineata*, ♀.  
 „ 16. *Steganomus gracilis*. ♂.



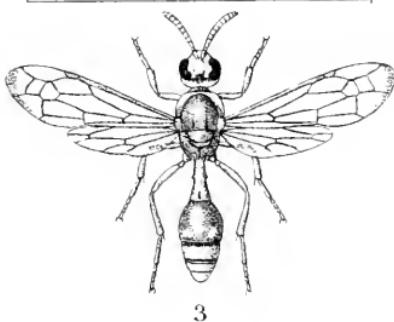
3a



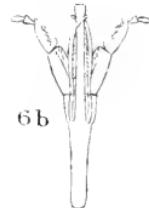
3b



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5a.



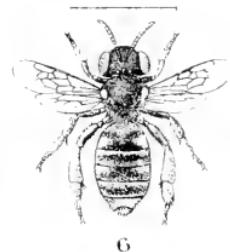
6b



7



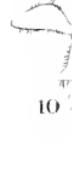
6a



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10



11



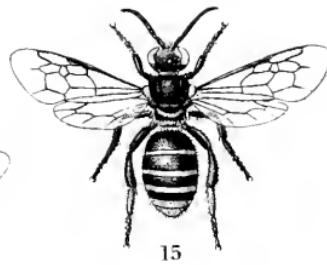
11a

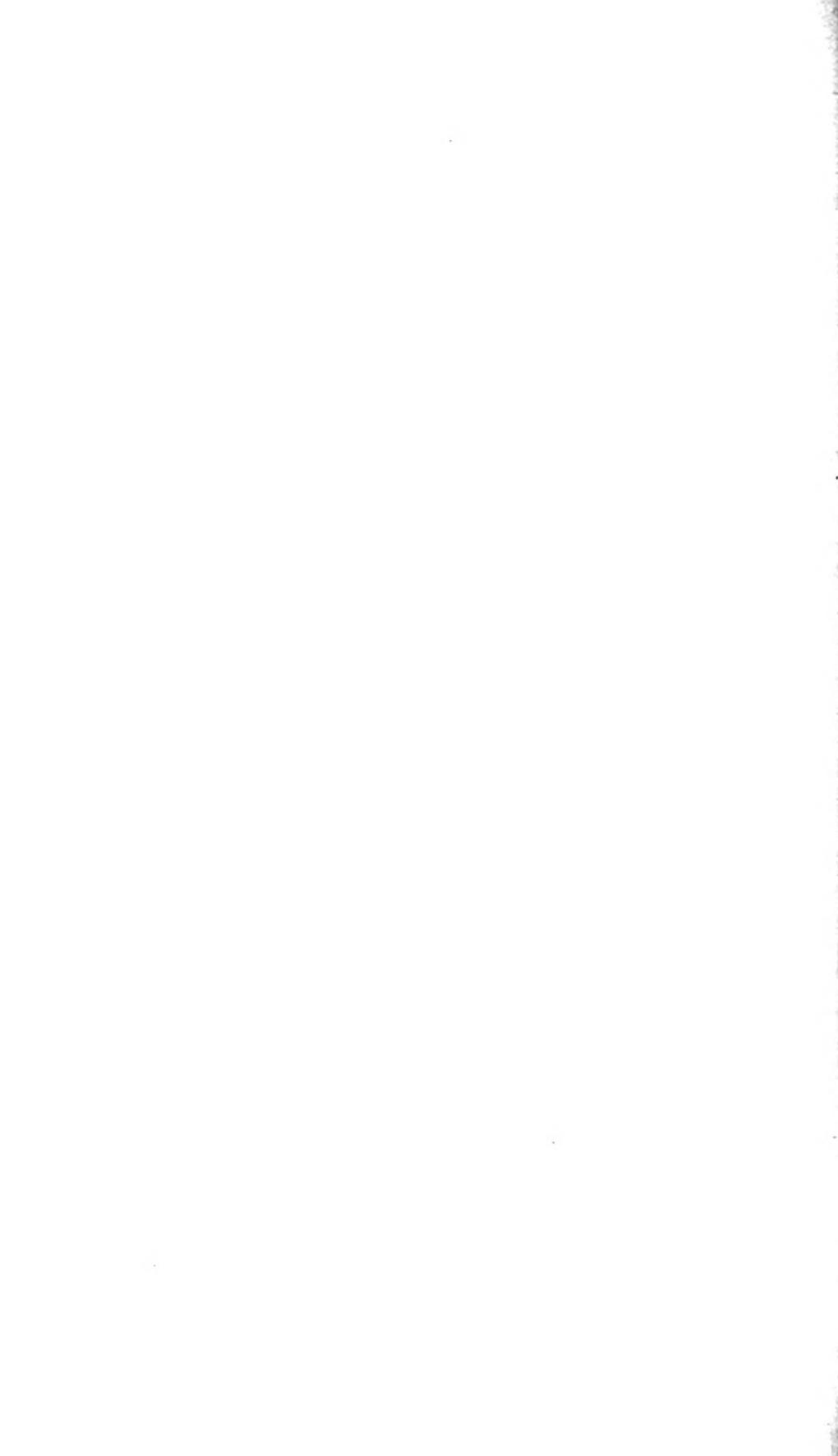


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*from the Author.*  
[From Volume 43, Part I., of "MEMOIRS AND PROCEEDINGS OF THE MANCHESTER  
LITERARY AND PHILOSOPHICAL SOCIETY," Session 1898-9.]

Hymenoptera Orientalia, or Contributions  
to a knowledge of the Hymenoptera  
of the Oriental Zoological Region.  
Part VIII.

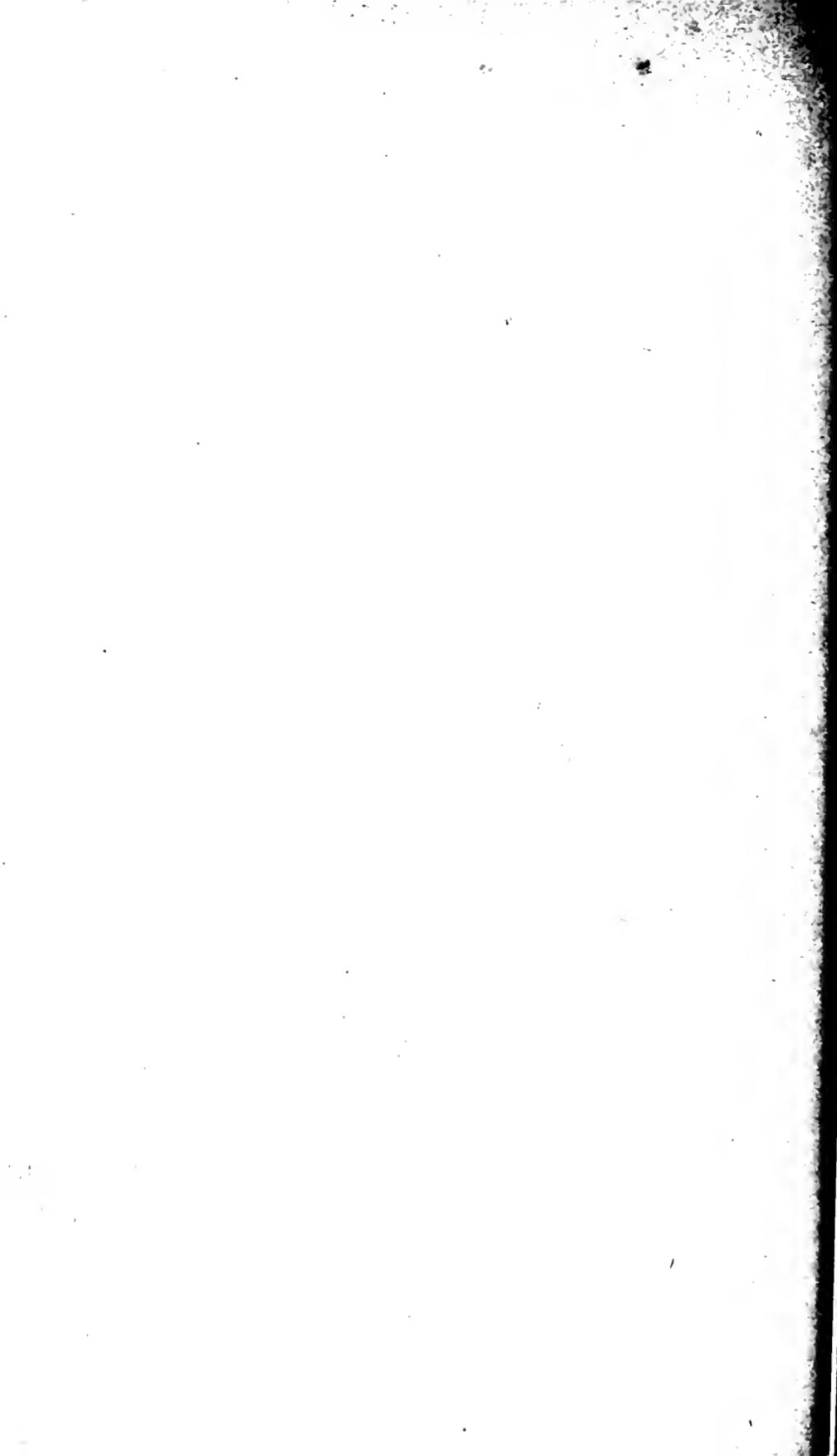
The Hymenoptera of the Khasia Hills.  
First Paper.

BY

P. CAMERON.

MANCHESTER:  
36, GEORGE STREET.

1899.



III. Hymenoptera Orientalia, or Contributions to a knowledge of the Hymenoptera of the Oriental Zoological Region. Part VIII.

The Hymenoptera of the Khasia Hills. First Paper.

By P. CAMERON.

[Communicated by J. Cosmo Melvill, M.A., F.L.S.]

Received October 17th. Read October 18th, 1898.

This paper may be looked upon as the commencement of a new series of the Contributions to a knowledge of the Hymenoptera of the East Indies, first begun in these *Memoirs* in 1889. It may be regarded in the light of a new series in two respects ; in the first place it makes known to us the Hymenoptera of a large district which has not hitherto been worked, so far at least as the Hymenoptera are concerned ; and, in the second place, the collections about to be described and catalogued contain large numbers of species belonging to groups about which up till now our information has been of the most limited description, at any rate as regards the Oriental Region.

That the part of the eastern Himalayan Range known as the Khasia Mountains is likely to prove exceedingly rich in species there can, I think, be no doubt at all. This seems likely to be more particularly the case with the parasitic species, *Ichneumonidæ*, *Braconidæ*, &c., which, judging from our present information, are rare in the Central regions and in the South of India, where their place is probably taken by parasitic Diptera.

The species recorded and described in this and the

following papers are now in the collection of Mr. G. A. J. Rothney. They form a notable addition to our knowledge of the hymenopterous fauna of the mountains; but these papers can only be looked upon as a beginning towards an enumeration of the species, which must number many hundreds, and more probably thousands. The fact that in the comparatively small region of Sikkim there are found about 600 species of Butterflies, and probably thousands of Moths, is in itself sufficient evidence of the rich harvest which awaits the student of Hymenoptera, when collectors begin to pay attention to other groups than the Lepidoptera. The specimens were collected by the native Lepchas, some of whom make excellent collectors; but, as might be expected, they only collect large or medium sized species.

An excellent description of the Khasia Mountains is to be found in that admirable book of travels, Hooker's *Himalayan Journal*.

Judging from the present collection, the Hymenoptera of the eastern Himalayan Mountains appear to be markedly different from those found in the western part of the range; but our knowledge of the fauna of the western parts of the group, to say nothing of the northern plains and of the mountains of Central India, is so small that it is useless at present to discuss the geographical distribution and relationship of the species. Some of the species constitute well-marked new generic types. In establishing these, I have not taken Foerster's generic revision of the *Ichneumonidae* as a basis. If I were to do so, I should be compelled to form a very much larger number of new genera; but as the system adopted by Foerster appears to me to be largely artificial, I have not followed it.

Since the publication of Smith's Catalogue,\* in 1869,

\* A Catalogue of the Aculeate Hymenoptera and Ichneumonidae of India and the Eastern Archipelago. *Proc. Linn. Soc.*, 1869.

there has not been much added to it so far as regards the *Terebrantia*—only a few papers by Van Vollenhoven, Westwood and myself have been published. In Mr. W. F. Kirby's Catalogue,† forty-five species of Sawflies and Woodwasps are enumerated from India.

### SIRICIDÆ.

#### TREMEX FLAVICOLLIS, *sp. nov.*

*Niger, longe fulvo-hirtus; prothorace lineisque abdominis late flavis; pedibus nigris, tibiis tarsisque late flavis; alis flavo-hyalinis, apice fumatis.* ♀.

Long. 22; terebra 5 mm.

Antennæ bluish-black, 18-jointed, the apex distinctly attenuated, the scape darker, the apex rufo-testaceous; the middle of the flagellum thickly covered with short, stiff, black hairs, especially on the apices of the joints. Head with a brassy-purple tinge, thickly covered with long, fulvous hair, which is longest and thickest on the front; rugosely punctured on the front, the vertex with the punctures not so deep and more widely separated, the orbits below the antennæ smooth and shining, the face largely raised above this smooth part and strongly and closely punctured, the raised part roundly curved and with a blunt, short, triangular tooth near the middle; mandibles above closely punctured. Prothorax yellowish-testaceous, the base slightly and roundly incised, above thickly covered with rough tubercles and sparsely with pale hairs. Mesonotum rugose, thickly covered with long, fulvous hair. Scutellum smooth and shining, blue; the median segment opaque, rough. The pleuræ and sternum thickly covered with long, fulvous hair, strongly punctured, and with a bluish tinge. The legs have the coxæ, trochanters and femora black; the tibiæ pale testaceous,

† List of Hymenoptera. Vol I. *Tenthredinidæ and Siricidæ.* 1882.

blackish at the apex ; the tarsi black, with the greater part of their basal joint yellowish-testaceous at the base ; they are all thickly covered with pale hairs ; the femora are strongly punctured and have a purplish tinge. The costa, stigma and nervures are rufo-testaceous. Abdomen black, the apex with a violaceous tinge ; the basal two segments, and the fourth more broadly, are lined with yellow at the base ; the last segment is roundly depressed at the base, where it is purple and almost smooth, not rough like the rest of the segment ; the apex of the penultimate segment behind it is semicircularly incised, the edge of the incision being acutely raised. The basal ventral segments are smooth and shining, their apices and central parts yellowish-testaceous ; the apical ventral segments are coarsely punctured ; the spine is roughly serrate below ; the sheaths of the ovipositor black, dark ferruginous on the lower side, its sides coarsely, somewhat obliquely, striated ; the top near the apex with some short, stout, irregular teeth.

Comes near to the East Indian *T. Smithii* Cam., but that has the wings purplish-hyaline, with a hyaline spot in the second brachial cellule and one in the middle of the hinder wings ; the body blue-black, the thorax without yellow, the base of the hinder tibiae and of the hinder tarsi only yellow, &c.

#### XIPHYDRIA QUADRIMACULATA, *sp. nov.*

*Nigra ; mandibularum basi late, maculis quatuor abdominis basi, basi tibiarum late basique tarsorum posticorum albis ; alis hyalinis, nervis stigmatisque nigris.* ♀.

Long. 13 mm.

Antennæ 12-jointed : the scape bare, shining, dilated at the apex ; the flagellum distinctly tapering towards the apex, where the joints are brownish beneath ; the tenth

and eleventh joints are broadly, but not deeply, curved beneath. Head opaque, the vertex and occiput more shining; almost impunctate; the vertex closely punctured above, the lower part closely transversely striated; between and below the ocelli more strongly obliquely striated; between the antennæ rugosely punctured; in the middle is a short, narrow, deep, longitudinal furrow. Mandibles broadly white at the base, the base on the lower side narrowly black; the base and apex of the teeth piceous; the apices of the palpal joints testaceous, the front, face and base of the mandibles thickly covered with short, white hair; the lower part of the vertex is raised in the middle, the raised part being bordered by a narrow, indistinct furrow. Thorax black, closely rugosely punctured; the propleuræ coarsely rugosely punctured and deeply triangularly incised in the middle above, the base and apex being rounded; its lower side at the apex white. Mesopleuræ closely rugose, running into reticulations in the middle; the apex bordered by a sharp keel behind; median segment coarsely rugosely punctured, widely and deeply depressed in the middle; the cenchri are large and white. Median segment coarsely punctured, most strongly on the outer side, the sides of the cleft being almost smooth and they are shining. Metapleuræ deeply excavated in the middle, narrowed below, where in the middle they are crenulated; in the middle behind these is a large depression. Legs black; the base of the tibiæ—the hinder pair very broadly especially on the outer side—and the basal joint of the hinder tarsi, white; the claws and calcaria ferruginous; the former toothed at the base. Wings clear hyaline; the first radial cellule short, about one-fourth of the length of the second. The second cubital cellule is longer than the first and more than twice the length

of the third; the first recurrent nervure is roundly curved and is received in the basal fourth of the cellule; the second is oblique, straight, only slightly curved near the cubital nervure; the third cubital cellule is a little wider at the top than at the bottom; the third transverse cubital nervure is bullated at the top and bottom. Abdomen closely punctured at the base, the middle segments aciculated, the apical smooth; on the apical half of the second segment is a white mark at the side; the side of the third segment is almost entirely white. The sheaths of the ovipositor are punctured and covered sparsely with fulvous hair.

This makes the second species of *Xiphydria* recorded from India.

#### TENTHREDINIDÆ.

##### ABIA MELANOCERA, *sp. nov.*

*Cupreo-viridis; antennis nigris, basi rufo-testaceis; apice femorum tibiis tarxisque pallide flavis; alis hyalinis, medio fumatis; costa stigmateque rufo-testaceis.* ♀.

Long. 10 mm.

Antennæ black, the scape rufo-testaceous, the apical three joints forming a club, all three are distinctly separated, the last joint slightly shorter than the preceding, the basal joint of the club is distinctly longer than either of the apical and narrowed at the base, the last joint is slightly oblique; the vertex and outer orbits are brassy, almost golden, closely and strongly punctured, thickly covered with long, dark hair, broadly triangularly depressed behind the ocelli, and more widely and deeply in front of the hinder pair; the middle of the vertex is bluish, not golden. Below the antennæ is a wide and deep furrow, which is prolonged downwards at the sides. The face is coarsely punctured, the labrum large, smooth, the apex

rounded, slightly depressed in the middle, and thickly covered with long, blackish hairs. Mandibles rufous, the teeth black; the palpi pale fulvous-yellow. Mesonotum and scutellum strongly punctured, the scutellum more strongly at the base, covered, but not thickly, with longish, dark fuscous hair, the middle lobe is deeply and widely hollowed in the middle; the lateral furrow is deeper and more clearly defined at the bottom near the apex; the lateral lobes are distinctly separated at the apex by a wide, but not very deep, furrow, which has, at its base, a narrow, longitudinal keel; the depression at the base of the scutellum is deep and smooth. The scutellum is more coarsely punctured than the mesonotum. The coxae, trochanters, and the greater part of the femora dark blue, mixed with brassy tints; the apical joint of the trochanters testaceous; the apex of the femora, the tibiae and the tarsi stramineous; the apices of the tarsi ferruginous; the claws are bifid. Wings fulvo-hyaline, a distinct smoky cloud at the base of the stigma, darkest at the top. Abdomen closely punctured, more strongly and closely punctured on the basal segments; the segments distinctly convex, the depressions deep, smooth, the basal one shagreened; the keel on the basal segment is stout and distinct, on the second narrower and less distinct, especially towards the apex.

Belongs to *Abia*, *sensu Str.*, and comes near to *A. nitens* L., except that the antennae are black. The antennae are distinctly 7-jointed, the scutellum largely convex, distinctly raised above the mesonotum; the claws sharply bifid, and the keels on the first and second abdominal segments clearly defined; the tarsal patellæ well developed, and the puncturing on the abdomen deep and well marked.

Species of *Abia* have been recorded from China and Japan, but none hitherto from the Oriental Region proper.

*HYLOTOMA ALBOBALTEATA, sp. nov.*

*Caerulea; abdominis segmento secundo, tibiis basique tarsorum albis; alis hyalinis, apice fuscis.* ♀.

Long. 10 mm.

Antennæ nearly as long as the head and thorax united, black, the scape covered with longish, black hair. Head thickly covered with white hair below the antennæ, above them only sparsely haired. The frontal area large, its apex triangular, inside finely punctured; its sides distinctly raised; the face broadly projecting in the middle; the apex of the clypeus widely incised in the middle, the sides of the incision oblique, mandibles piceous in the middle; the palpi pale, suffused with fuscous. Thorax smooth and shining, thickly covered with a pale down. Legs blue-black; the tibiæ and the greater part of the basal joint of the tarsi white, thickly covered with white hair; the four anterior tibiæ are blackish behind, the apex of the hinder tibiæ fuscous; the base of the second joint of the hinder tarsi white. Wings hyaline; the costa and stigma fuscous, the nervures darker; at the top the second cubital cellule is as long as the second; at the bottom shorter than it; the first recurrent nervure is received in the basal third; the second nearer the base of the cellule. Abdomen with the second segment white all round; the apical segments thickly covered with soft, white hair; the last segment is widely incised.

Comes nearest to *H. albocincta* Cam. from Nepaul, but that has the third, not the second segment, yellow, the "fore coxæ and greater part of the legs pale yellowish," &c., and the tarsi are not black, only white at the base as in the present species. The fuscous cloud extends over the radial, the second and third cubital and more faintly on to the top of the fourth cellules. The tegulae are whitish.

HYLOTOMA MACULIPENNIS, *sp. nov.*

*Caerulea, dense albopilosa; antennis nigris; alis hyalinis, macula substigmatali violacea.* ♀.

Long. 9 mm.

Antennæ black, the flagellum thickly covered with short, stiff hairs; the scape more densely with longer, paler hair. Head smooth and shining; the frontal fovea large, smooth, deep behind shallow in front, and merging into the face, not being clearly defined at the apex. The apex of the clypeus is obliquely depressed at the point, where it is slightly incised; mandibles deeply grooved in the middle, their lower side piceous; the palpi blackish, thickly covered with white hair. Thorax smooth and shining, the pleuræ and sternum thickly covered with white hair. The prothorax above is sharply keeled at the base, the keel being bordered behind by a furrow; in its centre behind is a fovea. The parapsidal furrows are wide and deep; in the middle at the base is a short, deep furrow; the basal lobe is joined, at its apex, to the scutellum by a furrow. The scutellum is strongly convex; the apex has a more abrupt slope than the base. Wings hyaline, the nervures and stigma black; between the stigma and the cubital nervure is a fuscous cloud which occupies the whole of the second cubital cellule and the base of the third, the part of it in the latter being obliquely narrowed; the second cubital cellule at the top is a little shorter than the third, below, if anything, longer than it; the first recurrent nervure is received near the basal third, the second about the same distance from the base of the third cellule. The legs are thickly covered with short, white pubescence; that on the tarsi shorter, thicker and darker; the claws are rufous. Abdomen shining, almost bare.

Allied to *H. janthina* Klug, but that species may be known from it by the entire apex of the fore wings being clouded, not a cloud under the stigma only.

*HYLOTOMA LUTEIVENTRIS, sp. nov.*

*Nigra; abdomine luteo, supra late nigro; alis fusco-violaceis, nervis stigmateque nigris. ♂.*

Long. 7 mm.

The scape of the flagellum black; the flagellum brownish, thickly covered with long, black hair. The face has a slight bluish tinge, closely and minutely punctured, thickly covered with short, fuscous hair; broadly, triangularly projecting in the middle; the sides of the projection bordered by a furrow, which is deepest and widest below. The apex of the clypeus has a shallow incision; the mandibles are black, with bronzy tints; the palpi are black, covered with white hair; the apical joint of the maxillary obscure testaceous. The front and vertex are thickly covered with short, black hairs; the centre of the front raised, the raised part becoming higher towards the apex; its centre hollowed; the depression of equal width, except that it is slightly narrowed near the apex. Thorax black, with bluish tints; covered with short, black pubescence; the scutellum more thickly with longer, black pubescence; the post-scutellum very smooth and glabrous with a violaceous lustre and deeply and widely depressed at the base. The basal segment of the abdomen coarsely aciculated; the other segments are smooth, the black with blue and violaceous reflections on the sides, the apical two and the ventral segments luteous. Legs blue-black, thickly covered with short, black hair. The wings are lighter-tinted towards the apex; the second cubital cellule at the top is shorter, at the bottom slightly longer, than the third; the first recurrent nervure is received near the basal fourth of the cellule; the second about the same distance from the base of the third cellule.

Allied to *H. zanthogaster* Cam.

## TENTHREDO CAERULEA, sp. nov.

*Caerulea; basi mandibularum, labro femoribusque subtus albis; alis fusco-hyalinis, fascia substigmatali fumata.* ♂.

Long. 12 mm.

Antennæ not much longer than the abdomen, distinctly tapering towards the apex, the basal four or five joints blue, tinged with purple, the apical joints black, the scape closely punctured, sparsely pilose ; the flagellum thickly covered with short, black hair. Head smooth, shining, impunctate, the labrum white ; the occiput sharply margined ; the vertex roundly raised in the middle ; the hinder part separated by an oblique depression from the ocellar region ; the frontal area narrowed behind, the sides sharply and stoutly keeled, the apex more depressed and with a raised conical piece in the middle. Clypeus with a raised semi-circular incision, smooth ; the labrum and base of mandibles thickly covered with long, white hair ; the mandibles are broadly white at the base ; the apical joints of the palpi are white. The middle lobe of the mesonotum is raised, with a slope from the middle to the base and apex, the former being the shorter and steeper ; the furrow is deep ; the apex sharply triangular ; the middle lobe bears large, deep punctures, all clearly separated ; the lateral lobes are less distinctly punctured. Scutellum pyramidal, rounded on the top ; sparsely covered with large, deep punctures ; the apex with a more oblique slope than the base. The base of the metanotum has an obliquely rounded slope, the top of which is roundly raised, the sides being more narrowly roundly raised ; the apex is bluntly, triangularly raised in the middle and sharply separated from the basal part of the segment ; the sides are finely striated in the middle. Propleuræ deeply depressed in the middle, sharply keeled on the base. Mesopleuræ smooth at the base and apex ;

the centre strongly deeply reticulated. The sternum is thickly covered with short, fuscous hair, is narrowly furrowed down the middle and stoutly tuberculated on the apex at the sides; the hair on the pleuræ is longer than on the breast. Legs thickly covered with long, white hair; the tibiæ and tarsi are darker than the femora and are more thickly covered with white hair; the under sides of the femora, of the anterior tibiæ, and more or less of the trochanters on the under side are white; the claws are bifid; the lower tooth of the front calcaria stands out obliquely and is shorter and somewhat stouter than the other. The first recurrent nervure is received shortly before the middle of the cellule; the second quite close to the second transverse cubital nervure; the third cubital cellule is a little longer than the second. The abdomen is much more suffused with cobalt-blue than the thorax, particularly above.

Comes near to *T. clypeata* Cam. and *T. metallica* Cam. but is quite distinct from either.

✓ *TENTHREDO SPINOSA, sp. nov.*

*Nigra, abdomine testaceo; antennis albis, basi nigris; pedibus anterioribus flavo-testaceis; femoribus tibiisque posticis rufo-testaceis; tarsis posticis albis; alis fulvo-hyalinis, stigmate testaceo. ♂.*

Long. 14 mm.

Antennæ white, the apical joints tinged with testaceous; the basal three joints black; the first testaceous below, the third white at the apex beneath. Front and vertex broadly and deeply depressed at the sides; shining, impunctate; the front ocellus is surrounded by a semicircular furrow behind; in front of it, on either side, is a short, deep depression; above the antennæ is a long, wide and deep one; the vertex behind the ocelli is

bluntly conical. The clypeus, labrum, mandibles, except their apex, and the palpi are yellowish-white; the occiput margined distinctly. Thorax black, the mesonotum obscurely punctured, more strongly on the middle lobe, which is widely and deeply furrowed down the middle; thickly covered with short, black hair. Scutellum pyramidal, sparsely covered with long, black hair; the apex with a long, oblique slope; the space between the cenchri depressed; the part behind it broadly raised. Propleuræ widely and deeply depressed in the middle, where they are finely aciculated; above there is a wide, deep, curved depression, narrowed at the base. Mesopleuræ bearing large, deep, distinctly separated punctures, which are more numerous on the lower than on the upper side; on the lower side, next to the sternum, is a wide and deep furrow clearly separating the sternum from the pleuræ; the edges of the sternum are margined and end at the apex in large, stout, somewhat triangular, teeth, which are whitish-testaceous at the apex and project obliquely. The four front legs are yellowish-testaceous; the middle tibiæ and tarsi have a fulvous tinge; the fore coxæ are black, testaceous at the apex; the middle coxæ are pale yellowish, broadly black at the base; the hinder femora and tibiæ are dark fulvous-testaceous, their coxæ somewhat paler, the tarsi pale yellowish, more fulvous at the base. Wings fulvo-hyaline, the costa and stigma fulvous, the second cubital cellule is not much more than one-half the length of the third; it receives the recurrent nervure shortly before the middle; the second recurrent nervure is received in the apical fourth. Abdomen rufo-testaceous, paler beneath.

✓ TENTHREDO ANNULITARSIS, *sp. nov.*

*Pallide olivacea, nigro-maculata; pedibus pallidis;*

*coxis late, basi femorum medioque tibiarum posticarum nigris; alis hyalinis, apice fumatis.* ♀.

Long. 13 mm.

Antennæ pallid yellow, the second and the penultimate joints blackish beneath; the third and fourth joints subequal. Head shining, impunctate; the vertex thickly covered with short, black hair; the face, clypeus and labrum with a few long, pale hairs; the occiput in the middle, the middle of the vertex and the front more broadly black; the front broadly depressed in the middle at the apex, the depression bordered by broad keels which are raised and rounded near the apex; the apex of the clypeus broadly rounded; the apex of the labrum fringed with golden-fulvous hair; the apex of the mandibles black. The basal lobe of the mesonotum roundly and distinctly raised; the basal half black, brownish in the middle, its furrow narrow, complete; the lateral lobes are broadly black on the outer side; all three are thickly covered with short, black hair. Scutellum pyramidal, smooth, sparsely covered with long, black hair. The base of the propleurae broadly black; the upper part, the base, the apex more transversely, and the lower part more broadly, black; the mark on the lower side is incised in the middle. Wings fulvo-hyaline; the apex darker, smoky, with a violaceous tinge; the second cubital cellule is distinctly shorter than the third, and receives the recurrent nervure in the middle, the second is received quite close to the base of the cellule. Legs coloured like the thorax; the hinder coxae broadly behind the base of the hinder femora to near the apex, the base of the tibiae broadly, and the apices of the joints of the four anterior tarsi, black; the tibiae and tarsi thickly pilose, the hinder tarsi more thickly than usual. The bases of the abdominal segments are lined with black.

✓ TENTHREDO SIMLAENSIS, sp. nov.

*Viridis; capite thoraceque late nigro-maculatis; antennis, tibiis tarsisque posterioribus nigris; alis hyalinis.* ♀.

Long. 11-12 mm.

Hab. Simla.

Antennæ black, as long as the head and thorax united, the third joint distinctly longer than the fourth. The front and vertex are black, except the former above the antennæ and two short broad lines on the vertex behind the ocelli and extending a short way down the occiput ; the frontal area distinct, depressed ; its sides broad, broader and more raised at the apex where they are green. The clypeus sparsely, the labrum more thickly covered with long, pale hair ; the incision in the clypeus not rounded in the middle, the sides of the incision being straight, oblique, not rounded. Mandibles broadly black at the apex. Prothorax green, broadly black in the middle above. Mesonotum black, except the apex of the middle lobe ; it is smooth and shining. Scutellum, postscutellum and the scutellar keels, green ; the scutellum not much raised ; the base with a long, the apex with an abrupt, slope ; it is covered with long, black hair. The mesopleuræ black under the wings, its lower edge and the mesosternum black. The four anterior tarsi are broadly annulated with black ; the middle tibiæ are black behind ; the hinder tibiæ and the hinder tarsi are entirely black. Abdomen has down the sides black marks, which are broader than long ; the sheaths of the ovipositor are black at the apices.

✓ TENTHREDO KHASIANA, sp. nov.

*Olivacea, late nigro-maculata; flagello antennarum nigro; pedibus nigro-maculatis; tibiis tarsisque posticis*

*nigris; alis hyalinis, apice fumatis; stigmate sordide testaceo.* ♀.

Long. 15 mm.

Antennæ not much longer than the thorax, distinctly tapering towards the apex, black, the scape yellowish-white. Head black; the face, clypeus, labrum, base of mandibles, palpi, the inner orbits broad at top and bottom, much narrowed towards the middle; two short, broad lines behind the ocelli and the upper and outer orbits broadly, yellow. Clypeus broadly, but not deeply, incised, slightly oblique at the base; the front shallowly depressed; the lower ocellus with a rounded keel behind it; there is a transverse furrow behind the ocelli; the middle of the vertex raised, clearly separated. Thorax black, the apical two-thirds of the middle lobe of the mesonotum on the inner side; two marks opposite its apex on the lateral lobes; the scutellar keels, two large marks on the base of the scutellum, a semicircular mark at its apex; the sides broadly and the apex of the median segment, the edge of the pronotum, the base of the propleuræ more broadly, the apex more narrowly, a large, oblique mark, narrowed in the middle, on the mesopleuræ, two large oblique marks on the metapleuræ and a mark, narrowed at the base, on the apex of the mesosternum in the middle, yellow. Mesonotum shining, finely punctured; its middle lobe furrowed throughout; the scutellum roundly convex, the basal and apical slopes about equal; it is shining, and sparsely haired. Legs pale yellow; the apex of the fore femora, the whole of the hinder tibiæ and the apices of the tarsal joints, black; the middle femora have the apical half lined with black; the tibiæ are more broadly lined with black behind, and the tarsi are entirely black; the hinder femora, coxae and trochanters are broadly black behind, and the hinder tibiæ and tarsi are entirely black.

The radial nervure is received in the middle of the third cubital cellule, which is not much longer than the third, the first recurrent nervure is received in the middle, the second in the basal third of the cellule. Abdomen black, the apices of the basal segments olive-coloured.

✓ **TENTHREDO BICARINATA, sp. nov.**

*Ferruginea; apice antennarum lineisque duabus meso-noti nigris; alis fusco-violaceis, stigmate nervisque nigris.* ♀.

Long. to apex of first abdominal segment, 10 mm.

Antennæ rufous, yellow towards the middle; the apical half of the sixth and the apical three joints entirely black. Head rufo-ferruginous, the base of the clypeus and of the labrum, the lower orbits outside, and the mandibles, yellow; the apex of the mandibles black. The middle of the vertex bounded by two deep, narrow furrows, and having in the centre, near the apex, a longitudinal, not very clearly defined, keel; outside the anterior ocellus is a narrow keel; from the apex of these, on the inner side, a stout keel runs to the base of the antennæ. The incision on the apex of the clypeus is broad and not very deep; the hinder edge of the head is sharply keeled all round. Mesonotum closely punctured, the middle lobe furrowed down the middle; its apex lemon-yellow; the middle lobes are broadly black on the outer side, and covered with short, black hair. Scutellum sharply pyramidal, thickly covered with longish, black hair, the top smooth and shining, the post-scutellum aciculated and with only a few punctures. Propleuræ smooth, impunctate, black, except on the top, and more narrowly at the base and apex. Mesopleuræ rugosely punctured, most coarsely on the lower side; tuberculated and keeled on the lower edge at the base and more distinctly behind, the apex excavated, black above, the

base of the metapleuræ broadly black. Wings violaceous, the base lighter, and more yellowish in tint; the stigma and nervures black. Legs coloured like the thorax; the four hinder coxæ broadly black behind. The apex of the abdomen is broken off in all the examples.

TENTHREDO CARINIFRONS, sp. nov.

*Nigra; capite thoraceque albomaculatis, antennis nigris, albo-annulatis; pedibus anticis albidis, posterioribus rufis; abdomine ferrugineo, apice nigro; alis violaceis, stigmate nigro. ♀ et ♂.*

Long. 17 mm.

Antennæ black, the greater part of the fourth and fifth and the base of the sixth clear white, the sixth and seventh joints thickened; the basal joints thickly covered with short, black hair. Head black; the labrum, the middle of the clypeus broadly, the inner orbits—broadest at the top; a transverse mark behind the eyes at the top, a larger one on the lower side; the base of the mandibles broadly and the palpi, white. Head smooth, shining; the frontal depression large, oval; behind bordered by a deep and wide furrow; there is a triangular depression between the ocelli; its sides striated; behind is a smooth, curved furrow; the middle of the vertex is bordered by a wide depression; the occiput above is sharply margined. Thorax shagreened, the mesopleuræ more coarsely than the rest; a broad line on the pronotum, not reaching to the base, and with a small oblique dilatation on its middle; the base of the tegulæ, a line on each side of the middle lobe of the mesonotum, the scutellum, except at the apex, the post-scutellum, a large mark in the centre of the pro- and of the meso-pleuræ, a smaller one on the lower side of the mesopleuræ, longer than broad and narrowed towards the apex, a mark, narrowed at the top, over the middle

coxæ and a longer one, enclosing the spiracles, over the hinder pair, yellowish-white. The mesosternum is closely punctured, thickly covered with short, pale hair, and bears two large, white marks on the apex. The front legs are white, lined with black behind ; the four hinder legs bright ferruginous, their coxæ black in front, the middle trochanters yellow. Wings almost uniformly violaceous, if anything paler at the base. The base and apex of the abdomen black, with a violaceous tinge, the middle ferruginous.

✓ *TENTHREDO COMPRESSICORNIS, sp. nov.*

*Nigra; capite thoraceque albomaculatis; antennis nigris, medio albis; pedibus pallide fulvis, basi coxarum nigro; alis violaceis.*

Long. to apex of first abdominal segment, 7 mm.

Antennæ black, the apical half of the fourth and the fifth joints, except at the apex, white. Head shining, impunctate; the frontal area large, rounded at the top; depressed, raised in the middle; the vertex distinctly raised; a narrow, but deep, furrow behind the ocelli; the face, inner orbits narrowly, the outer, especially below, more broadly; the sides of the clypeus at the base; the labrum and the base of the mandibles, yellowish-white; the black apex of the clypeus has a curved incision. Thorax black; the edge of the pronotum, broadly behind, more narrowly at the base, the apex of the middle lobe of the mesonotum, the sides of the lateral lobes on the inner sides opposite it; the scutellum, postscutellum, a large mark on the base of the mesopleuræ above, narrowed at the base below, a smaller mark, pear-shaped, on the apex lower down, a small mark on the base of the metapleuræ above and a larger one over the coxæ, pale yellow. Mesonotum closely punctured; the scutellum smooth, its apex covered with short,

black hair; its base with a long, oblique slope. The propleuræ and the upper part of the mesopleuræ smooth; the lower part of the latter with large, widely separated, shallow punctures. Legs pale bone-yellow; the base of the coxæ, the four anterior femora behind, and, to a less extent, in front and the four anterior tibiæ behind, black. Wings at the base fuscous-violaceous, from the base of the stigma dark violaceous; the hinder wings similarly coloured but lighter in tint. The basal segment of the abdomen bone-yellow, the middle dark blue, the apical broken off.

The apex of the abdomen is unfortunately broken off, but the characters which remain are sufficiently distinct from anything described to warrant the description of the species. The four apical joints of the antennæ are compressed.

TENTHREDO VIOLACEIPENNIS, *sp. nov.*

*Rufa; abdominis apice, tibiis tarsisque posticis nigris; alis fusco-violaceis ♀ et ♂.*

Long. 17 mm.

*Hab.* Simla.

Antennæ short, stout, uniformly rufous; the scape covered thickly with long, pale hair. Front and vertex coarsely punctured; the border of the frontal area broad, distinctly raised and closely punctured; the apical half of the enclosed space smooth and shining; the basal closely punctured; the vertex impunctate, smooth; the occiput not margined. Clypeus and labrum smooth, the former roundly incised, the latter yellowish; the apex of the mandibles black. On the thorax there are two large marks on the lateral lobes of the mesonotum, the greater part of the propleuræ, more or less of the apex of the meso- and the base of the meta-pleuræ, black. Meso-

notum closely punctured, thickly covered with short, black hair; the middle lobe widely depressed at the base, finely furrowed down the middle. Scutellum pyramidal, but not sharply so, the top being broadly and equally rounded; it is thickly covered with short, black hair. The legs are coloured like the thorax; the anterior are paler at the base; the hinder tibiæ and tarsi are black, except the apical joint of the tarsi. Wings smoky-violaceous, lighter, of a more yellowish tinge, before the stigma; the stigma and nervures black, the costa ferruginous. The apical half of the abdomen black; the apical three segments entirely so.

The ♂ is similar to the ♀; the middle lobe of the mesonotum is black at the base.

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The following species may constitute the type of a new genus when the Indian sawflies have been properly studied.

Head large, wider than the mesonotum, behind distinctly and sharply margined or keeled. Eyes parallel, not converging below; separated by a clear space from the base of the mandibles, and distinctly margined. Antennæ longish, thickened beyond the middle; the apex attenuated; the third joint not much longer than the fourth. Mandibles with only one long apical tooth. Wings, body and legs as in *Tenthredo*. The accessory nervure in hind wings interstitial.

It will be seen that it differs from *Tenthredo*, as defined by Konow, in the eyes not converging beneath, and in not reaching to the base of the mandibles, in which respects it agrees with *Rhogogastera*, but it differs from that genus in having the antennæ much longer and in the humeral cellule in the hind wings not being appendiculate.

The head is larger than usual, and much more sharply and distinctly margined behind; the vertex is distinctly furrowed, and the frontal area is distinctly defined.

TENTHREDO MEGACEPHALA, *sp. nov.*

*Flavo-testacea; flagello antennarum, femoribus, tibiis, tarsis posticis abdominisque apice nigris; alis flavis, apice fumatis.* ♀.

Long. 17 mm.

The scape of the antennæ covered with a longish, the flagellum densely with a short, black pubescence. Head large; the occiput sharply margined; the vertex raised in the middle, the furrows wide and deep, extending below the ocelli; the raised part of the vertex indistinctly keeled down the middle. The front is raised in the middle below the ocelli; the apex of the raised part depressed, narrowed gradually towards the apex, and with a keel in the middle; the keel broad at the base, gradually narrowed towards the apex. Clypeus and labrum smooth, pallid yellow; the apex of the clypeus roundly incised; the apical half of the labrum and the basal half of the mandibles covered with long, fulvous hair; the apex black. Mesonotum of a darker colour than the rest of the thorax; closely and rather strongly punctured, thickly covered with short, black hair; the middle lobe raised and furrowed in the middle. Scutellum large, pyramidal, the top with a longitudinal keel, and bearing long, black hair. The cloud in the fore wings extends from the end of the transverse radial, the second transverse cubital, and the second recurrent nervures; there is a distinct smoky cloud in the apex of the hinder wings. The four anterior legs are yellow, paler at the base; the apices of the tarsi infuscated; the hinder legs black, except the coxae and trochanters; all the tibæ and tarsi are thickly covered

with fulvous hair; the hinder calcaria rufous. The basal five segments of the abdomen luteous; the sixth and seventh violet-black above, the others entirely so.

✓ *MACROPHYA FOVEIFRONS, sp. nov.*

*Nigra; ore, linea pronoti, scutello, postscutello, maculaque mesopleurali flavis; pedibus flavis; dimidio apicali femorum posticorum apiceque tibiarum posticarum nigris; alis fulvo-hyalinis, stigmate fuscō. ♀.*

Long. 9-10 mm.

Antennæ short, black, almost bare, or with only a microscopic pile; the third joint distinctly longer than the fourth. The head shining, impunctate; the front and vertex raised; the former depressed in the middle; the sides of the depression wide; the apex rounded and deeply and roundly depressed; there is a deep, narrow furrow between the ocelli; behind them is a yellow mark, wider than broad, and slightly dilated behind. The clypeus, labrum, base of mandibles and palpi, yellow; the apex of the clypeus deeply and roundly incised; the sides sharply triangular; the apex of the labrum depressed. Thorax shining, black; the edge of the pronotum, a somewhat triangular mark on the lateral lobes of the mesonotum opposite the apex of the middle lobe, the scutellum, postscutellum, the apex of the median segment, the apex of the propleuræ in the middle, a large mark, longer than broad and narrowed at the apex, in the middle of the mesopleuræ and one over the hinder coxæ, yellow. Mesonotum shining, covered with short, fuscous hair; and with large, distinctly separated, punctures. Scutellum sparsely covered with long, pale hair; postscutellum coarsely punctured laterally; the middle smooth and roundly raised. Legs yellow; the coxæ, except at the apex, almost the apical half of the hinder femora, and

the apex of the hinder tibiæ, black. The first transverse cubital nervure is bullated ; the second is curved backwards. Abdomen above shining, black with a bluish tinge ; the ventral segments broadly yellow at the sides.

MACROPHYA MACULICORNIS, *sp. nov.*

*Nigra; apice antennarum, ore, linea pronoti, scutello pedibusque lateralibus anterioribus flavis; pedibus posticis fulvis, apice femorum et tibiarum basique tarsorum nigris; alis hyalinis, nervis stigmatisque nigris.* ♂.

Long. 10 mm.

Antennæ black, the apical four joints white, the third joint distinctly, but not much, longer than the fourth. Head black ; the labrum, clypeus, base of the mandibles, the palpi and a mark, wider than long and incised in the middle, at the apex, yellow ; the front and vertex rather strongly punctured ; the front raised in the middle, the centre of the raised part depressed ; more widely and deeply at the apex than at the base. Thorax black, the edge of the pronotum broadly, narrowly at the base ; two marks on the mesonotum near the apex of the middle lobe ; two large marks on the sides of the scutellum, narrowed towards the apex, its apex and the apex of the postscutellum, the sides of the propleuræ above, and an oblique mark over the middle coxæ, yellow. Mesonotum closely punctured ; the scutellum with the punctures larger and more widely separated. The apex of the propleuræ and the mesopleuræ closely and strongly punctured. The four anterior legs are pallid yellow ; the hinder coxæ strongly punctured and pallid yellow ; largely black above at the base where there is a yellow mark in the middle ; the femora and tibiæ fulvous ; the apical third of the femora and the apical fourth of the tibiæ, black ; the tarsi pale, the base of the metatarsus and the calcaria

black. Wings hyaline, the stigma and nervures black; the first and third cubital transverse nervures are largely bullated. Abdomen black above; the base of the third segment broadly fulvous, the fulvous band dilated at the sides and middle; the ventral segments broadly banded with yellow; the apical entirely yellow.

The antennæ are longer than usual for a *Macrophya*, but on the whole it agrees better with that genus than with *Pachyprotasis*; the hinder coxæ and legs are also longer than usual; the coxæ reach near to the apex of the fifth abdominal segment. There is no cross nervure in the lanceolate cellule, which is divided into two by a considerably greater space than in *M. foveifrons*. The white tip of the antennæ is unusual for a *Macrophya*.

✓ ALLANTUS MARGINICEPS, sp. nov.

*Niger; ore, abdominis basi, coxis, trochanteribus tibiisque late flavis, alis violaceo-fumatis, stigmate sordide testaceo.* ♀.

Long. 16 mm.

Antennæ scarcely so long as the thorax; the six apical joints distinctly thickened, almost bare. Head black, the clypeus and labrum yellow, shining, impunctate, sparsely covered with short, white hair. The front is broadly and deeply hollowed, the hollow divided in two by a transverse partition. The vertex in the middle behind is raised, the raised part broader than long and bounded by a deep furrow, which is, if anything, broader, deeper, and more curved at the sides than at the apex; the ocelli on the outer side are bounded by a deep furrow; there is a narrow one between the hinder pair, and an oblique one at the side of the front pair behind. The occiput is sharply margined above; behind, at the top, is a narrow furrow on the inner side of the margin.

Thorax shining, impunctate above; the furrow on the middle lobe of the mesonotum is wide and deep; the scutellum large, pyramidal, smooth; its basal and apical slope about equal in length. Propleuræ smooth, roundly, largely tuberculate in the middle above. The mesopleuræ bearing large, deep, irregular punctures; its extreme base smooth; the lower part, at the apex, largely, somewhat triangularly, projecting. Mesosternum bearing fine, widely separated punctures; its base oblique; the central longitudinal furrow minute; the apex, on either side of the middle, projects into triangular tubercles. Legs black; all the trochanters, the apices of the four hinder coxæ, the apices of all the femora narrowly, and the bases of all the tibiæ broadly—the hinder more broadly than the others—yellow. Wings fuscous-violaceous, the posterior and the hinder part of the anterior lighter in tint; the first recurrent nervure is received shortly before the middle; the second in the basal fourth of the cellule. Abdomen shining, the basal segments broadly, and the apices of the others narrowly, branded with yellow.

In certain lights the black colour has a distinct violaceous tint.

ALLANTUS BRUNNEUS, *sp. nov.*

*Rufus, abdominis basi nigro; tarsis posticis pallide flavis; femoribus anterioribus supra nigris; alis fulvo-hyalinis.* ♀.

Long. 13 mm.

Antennæ not much longer than the thorax; the apical four joints distinctly thickened; the third joint almost twice the length of the fourth; the ocellar region and the front distinctly raised; the former depressed in the middle, thickly covered with short, fuscous hair. Clypeus and labrum smooth, the latter with a yellowish

tinge, the former with a semicircular incision. Mandibles yellowish, the edges black, the apices piceous and black; the palpi pallid yellow. Mesonotum punctured, thickly covered with fuscous hair; the furrow on the basal lobe wide and deep, complete. Scutellum not much raised, rounded, covered with large punctures and with long, fuscous hair; the postscutellum smooth and shining, impunctate; the depression between the cenchri black. Propleuræ smooth, the apex of the lower half black. Mesopleuræ finely and closely punctured, especially at the base; the middle with some large, deep punctures; thickly covered with pale hair, as is also the mesosternum. The fore coxæ and trochanters are black below; the femora, tibiæ, and base of tarsi, yellowish in front, as are also their middle, but not so clearly; behind they are lined with black; the posterior coxæ are also lined with black before and behind above; the trochanters and femora are black above; the tarsi yellowish-white. Wings fulvo-hyaline, the fore pair distinctly smoky; the stigma and costa reddish fulvous; the first and second cubital cellules together are as long as the third; the first recurrent nervure is received shortly before the middle; the second near the basal fourth. Abdomen black above: the basal segments almost entirely black; the apical thickly covered with pale pubescence.

 SIOBLA RUFICOLLIS sp. nov.

*Nigro-caerulea; thorace rufo, mesosterno nigro, abdominis basi albolineato; pedibus albis, femoribus tibiisque nigromaculatis; tarsis posterioribus nigris; alis hyalinis, apice late fumatis. ♀ et ♂.*

Long. 10 mm.

Antennæ stout, the apical joints thinner; thickly covered with short, black, stiff hair; they are slightly

longer than the head and thorax united ; the third joint is slightly, but distinctly, longer than the fourth. Head nearly as wide as the mesothorax, shining, impunctate, the front and vertex thickly covered with fuscous pubescence ; the lower part of the front, the clypeus and the labrum thickly covered with long, white hair. The middle of the vertex and the ocellar region bounded by a deep furrow ; that on the former deeper behind ; the front is deeply depressed above the antennæ. Apex of clypeus roundly, but not deeply, incised ; the labrum slightly depressed, its apex rounded ; the apical joints of the palpi are fuscous, paler at the base. Thorax smooth, shining, impunctate, thickly covered with fuscous hair ; the prothorax, mesonotum with scutellum and the greater part of the mesopleuræ above, sanguineous ; the furrows on the mesonotum deep, that on the middle lobe wider and shallower ; the middle lobe ends at the apex in a keel. Cenchri large, cream-coloured ; the space between them rufous. All the trochanters, the apices of the coxæ, the base of the hinder femora, the four anterior tibiæ, the basal two-thirds of the basal pair and the base of the anterior tarsi white ; the claws unequally bifid. The second and third cubital cellules are equal in length above ; below the third is the longer ; both the recurrent nervures are received in the basal third of the cellules. Abdomen blue-black, shining ; the third segment and the base of the fourth dirty white.

*Siobla* is intermediate between the *Tenthredinides* and the *Selandriades*. The transverse basal nervure is united to the base of the cubital as in the *Tenthredinides*, but it has more the form of the *Selandriades*. The antennæ are short and thick ; the eyes are large, and reach near to the base of the mandibles ; the spurs are short, not one-fourth of the length of the metatarsus ; the claws are bifid ; the

lanceolate cellule has an oblique cross nervure; the third joint of the antennæ (which are short) is distinctly longer than the fourth; the patellæ are not developed.

#### ALLOMORPHA.

This genus was created by me for a Chinese species (*Trans. Ent. Soc.*, 1876, p. 463). It belongs probably to the *Tenthredinides* rather than to the *Selandriades*, but actually is intermediate between the two. The transverse basal nervure is received before the base of the radial, not close to or joined to it, as in the *Selandriades*, with which it agrees in having the calcaria short, not reaching near to the middle of the metatarsus; the lanceolate cellule has an oblique cross nervure; there is only one middle cellule in the hinder wings; the clypeus is deeply incised; the mandibles are long, sharply pointed, and end in one long tooth; the eyes are large, almost parallel, and reach close to, but do not touch, the base of the mandibles. The antennæ do not taper towards the apex, and are long and slender. The claws are bifid. The antennæ appear to have three colours in all the species.

#### ALLOMORPHA VARICORNIS, *sp. nov.*

*Fulva; antennis nigris, basi testaceis, apice albis; maculis mesonoti mesosternoque nigris; alis hyalinis, stigmate fusco, basi testaceo.* ♀.

Long. 11 mm.

Antennæ not much longer than the abdomen, the basal three joints testaceous, the fourth, fifth, and the greater part of the sixth, black; the rest white. On the head the ocellar region, the front broadly in the middle

and the sutures on the vertex are black ; the front is depressed ; the clypeus and labrum are pale yellowish ; the former closely punctured ; its incision wide, deep ; the labrum smooth, shining, rounded at the apex, its sides somewhat oblique and fringed with long, pale golden hair. Mandibles curved, sharply pointed, yellowish ; the apex and inner side black ; the palpi pale yellow. Thorax smooth and shining ; the base of the basal lobe and the outer side of the lateral lobes broadly black ; they are covered, especially the lateral, thickly with short, black hair. Scutellum convex, rounded, thickly covered with long, black hair ; the basal depression is wide and deep. Propleuræ shining, smooth, black ; the sides of the upper part rufous. Mesopleuræ bearing large, deep, roundish punctures ; the base finely and closely punctured, the apex impunctate, oblique ; the metapleuræ black, except in the middle above, where there is a wedge of rufous colour. Legs coloured like the body ; the coxæ and trochanters yellowish ; the hinder coxæ broadly black in front. Wings hyaline, with a slight fulvous tint ; the second and third cubital cellules subequal ; the first recurrent nervure is received near the basal third. Abdomen coloured like the thorax ; the dorsal segments with black transverse bands ; the sheath of the ovipositor brownish.

The ♂ is similar ; the black on the pleuræ is more extended, extending all over except under the tegulæ and on a large oblique mark on the middle behind ; on the antennæ the black extends on to the base of the third joint.

ALLOMORPHA PULCHRIPES, sp. nov.

*Nigra, late albomaculata; antennis nigris, basi testaceis,*

*apice albis; pedibus rufis, coxis, trochanteribus tarsisque albis; basi tarsorum posticorum nigro; alis hyalinis, stigmate fusco, basi pallido.* ♀.

Long. 8 mm.

Antennæ as long as the thorax and abdomen, not tapering towards the apex; the basal two and the base of the third joint testaceous; the apex of the sixth and the following joints clear white; the rest black; the second, third, and fourth joints equal in length and distinctly longer than the apical. Head black, shining, impunctate; the labrum, clypeus, mandibles, and palpi clear white; the mandibular teeth black. The front raised; shallowly depressed in the middle at the top; the lower part deeply, the apex of the clypeus widely, depressed. Thorax shining, impunctate, a line on the pronotum, the apex of the middle lobe of the mesonotum, the scutellum, the upper part of the mesopleuræ at the base, its apex narrowly and a large oblique mark in the middle towards the apex, white. Mesonotum impunctate, closely covered with short, black hair; the furrow on the middle lobe is narrow, complete; the scutellum rather flat; the depression at its base large. Wings clear hyaline, the stigma pale at the base; the recurrent nervures are received in the same distance from the base of the cellules within their basal third; the median nervure is received in the middle of the cellule; the accessory nervure in the hind wings interstitial. Legs rufo-fulvous, the hinder darker in tint; the coxæ and trochanters white; the base of the hind tarsi broadly black; the apex of the fourth and the other joints white; the claws ferruginous, bifid; the calcaria rufous. Abdomen black, shining; the apices of the segments, narrowly, the apical two entirely, white; the ventral surface whitish, except on the apical two segments.

TAXONUS FULVIPES, *sp. nov.*

*Niger, abdomine late testaceo-balteato; pedibus testaccis, anticis pallidis; alis fusco-hyalinis, nervis stigmateque nigris.* ♂.

Long. 6 mm.

Antennæ about as long as the abdomen, thickly covered with short, black hair; the third and fourth joints are about equal in length. Head shining, above thickly covered with short, black, the face thickly with longer fuscous hair; the labrum with still longer pale hair; the palpi pale testaceous; the incision in the clypeus rounded, not very deep; its sides almost triangular. Thorax black, an irregular white mark on the mesopleuræ behind; the mesonotum and scutellum minutely punctured, thickly covered with short, black hair; the pleuræ and sternum more sparsely with white pubescence. The radial nervure is received shortly beyond the middle of the cellule; the second cubital cellule is slightly longer than the third; the recurrent nervures are received distinctly in front of the middle of the cellule; the transverse basal nervure is received beyond the middle of the cellule. In the hind wings the humeral nervure is interstitial. On the abdomen the basal, the sides of the second segment at the base and the apical three segments, with the sheaths of the ovipositor, are black. The front coxæ and trochanters are white, the femora and tibiæ pallid-fulvous, the tarsi at the apex infuscated; the four anterior legs are not so pallid at the base; the apex of the tibiæ and the tarsi blackish; the claws are simple.

Appears to be a true *Taxonus*, the first recorded east of Europe. The nervure in the lanceolate cellule is not quite so oblique as it is in the typical species of *Taxonus*.

RETHRAX. *gen. nov.*

Eyes converging beneath, not reaching to the base of

the mandibles, the front broad, depressed ; the eyes margined behind. Antennæ of medium length, not much longer than the abdomen ; the third joint slightly longer than the fourth. Scutellum raised ; its centre stoutly longitudinally keeled throughout. Blotch indistinct, patellæ distinct ; the claws bifid. Wings as in *Tenthredo* ; the humeral nervure in the hind wings received beyond the transverse discoidal.

Differs from *Tenthredo* in the eyes converging beneath and in not reaching to the base of the mandibles. The antennæ are longer than in *Rhogogastera*, and with the third joint shorter compared with the fourth. The principal feature, however, of the genus lies in the very strongly keeled scutellum, a structure which does not occur in any known species of the *Tenthredinides*. The pleuræ are straight, not rounded on the lower side, the edge at its junction with the sternum being distinctly margined ; the orbits behind have a sharp keel above but not on the extreme outer edge. The parapsidal furrows are not very distinctly defined. The fore calcaria are rather peculiar, they are straight above ; the apex much narrowed and sharp ; before it is a large, acute, straight projection, much larger than usual.

#### RETHRA CARINATA, sp. nov.

*Nigra; capite thoraceque punctatis, ore pedibusque flavis, geniculis, tibiis tarsisque posticis nigris; alis fulvo-hyalinis, nervis stigmateque nigris.* ♀.

Long. 11 mm.

Antennæ black ; the scape sparsely pilose ; the flagellum almost glabrous. Front and vertex punctured, the vertex finely and closely, the front coarsely, especially in the middle, but the sides of the front at the apex are smooth and shining ; the front depressed in the middle,

more broadly behind. Clypeus, labrum, mandibles, and palpi yellow; the mandibular teeth black. Thorax black, a broad band on the pronotum and the tegulae lemon-yellow. Mesonotum opaque, closely punctured; the furrow on the middle lobe distinct. Scutellum pyramidal; more strongly punctured than the mesonotum, the middle stoutly keeled throughout, the basal and apical (or lower) part of the keel separated by a curved depression. Pleuræ opaque, closely and uniformly punctured; the sternum closely punctured, finely furrowed down the middle; the sides bluntly margined. Abdomen entirely black, without any yellow; the back with a distinct violet-blue tinge, smooth and shining. Legs straw-yellow; the apex of the four anterior femora above, the four anterior tibiæ behind, all the tarsi and the hinder knees and tibiæ, black; the patellæ are distinct; the claws are bifid.

PACHYPROTASIS VIOLACEIDORSATA, *sp. nov.*

*Flava, supra nigra; tibiis tarsisque anterioribus postice, apice femorum, tibiis tarsisque posticis nigris; alis hyalinis, stigmate nervisque nigris.* ♀.

Long. 8 mm.

Antennæ black, the scape yellow beneath; the vertex and the greater part of the front above, and the occiput, black; on either side of the vertex is an oblique yellow mark, triangularly narrowed on the lower side and touching the eyes; the apex of the labrum almost transverse. The upper part of the body black, except the apex of the middle lobe of the mesonotum, a mark between it and the scutellum, the scutellum and post-scutellum; the sides and under surface pale yellow, except the upper part of the pronotum and of the mesonotum, except at the apex; there is a small black mark on the sides of the mesosternum. The four anterior tibiæ and

tarsi are lined behind with black; the apex of the hinder femora above, and the hinder tibiæ and tarsi, entirely black. The dorsum of the abdomen has a distinct bluish tinge.

It comes near to *P. albocincta* Cam., from the Himalayas (*Trans. Ent. Soc.*, 1881, p. 565), but that is distinct.

BELDONEA, *gen. nov.*

Wings with two radial and four cubital cellules; the basal nervure received distinctly before the base of the cubital Lanceolate cellule divided into two unequal parts through the humeral nervure touching the brachial nervure. Hind wings with two cubital cellules; the accessory nervure appendiculate. Antennæ short, thickened before the apex; the third joint is twice the length of the fourth. Eyes large, parallel, reaching close to the base of the mandibles. Clypeus transverse, or nearly so; the labrum large, rounded at the apex. Mandibles large, acutely pointed at the apex; when closed their apices reach to the side of the clypeus. Legs of normal size; the calcaria short, not much more than one-fourth of the length of the metatarsus, which is distinctly longer than all the other joints united. The claws are bifid; the anterior calcaria are sharp, simple. Abdomen short.

The relationship of this genus is clearly with *Siobla* and *Strongylogaster*, from both of which it may be known by the form of the lanceolate cellule; in *Siobla* it is open, not divided into two parts by its nervure uniting with the one above, there being further no oblique cross nervure, the same remark applying to *Strongylogaster*. Comparing it with the typical *Strongylogaster*, e.g., with *S. cingulatus*, it is seen to have the abdomen shorter and thicker, the antennæ more thickened beyond the middle, and with the third joint clearly longer compared with the fourth; and

further, the basal nervure is not joined to the cubital. The three characteristic features belonging to it are the antennæ thickened beyond the middle, and with the third joint much longer than the fourth; the contracted lanceolate cellule and the long metatarsus. The third and fourth joints of the hinder tarsi are acutely produced at their apices.

BELDONEA RUGIFRONS, sp. nov.

*Nigra; thorace rufo; medio antennarum, coxis, trochanteris dimidioque basali tibiarum posticarum albis; alis hyalinis, fascia substigmatali fusca.* ♀.

Long. 8 mm.

Head black, the vertex with a purple tinge; thickly covered with short, pale pubescence; the face and clypeus with the hair longer and thicker; the front rugosely punctured, most strongly in the middle, which is raised and separated from the sides. The vertex behind the ocelli raised; bounded laterally by a wide and deep furrow; the lower part, and between the ocelli, rugosely punctured; the punctuation on the upper part not so strong, and there is a distinct keel down the middle; the oral region smooth, densely covered with long, white hair; the apical half of the mandibles piceous; the palpi pale black at the base. Antennæ not much longer than the thorax, distinctly thickened towards the apical joint which is itself slightly attenuated and longer than the preceding; the first, third, fourth, and fifth joints white; the third joint is almost twice the length of the fourth. Thorax closely punctured above; the mesopleuræ coarsely, rugosely punctured; the breast smooth; its central furrow wide and deep at the apex; the middle lobe of the mesonotum widely furrowed at the base; the scutellum rugosely punctured; the metanotum widely depressed in

the middle. Wings large, hyaline, a large, dark smoky cloud between the base and apex of the stigma and extending into the discoidal cellule; the radial nervure is received shortly beyond the middle of the cellule; the recurrents in the basal thirds, as is also the transverse median. Legs black, covered with white hair; all the coxae and trochanters, the apex of the anterior femora and the base of the tibiae in front and the basal half of the hinder tibiae, the apex of the first broadly and the second joint of the hinder tarsi, white; the spurs short, not one-fourth of the length of the metatarsus, which is longer than the succeeding joints united; the claws are bifid. Abdomen as long as the head and thorax united, black; the second segment white; the basal segment has a metallic-blue tinge.

#### BUSARBIA, *gen. nov.*

Antennæ nine-jointed, long, filiform, the third and fourth joints equal in length; eyes parallel, not reaching to the base of the mandibles. Mandibles large, their apical tooth long. Apex of the clypeus roundly incised, oblique. The frontal area large, transverse at the apex, rounded and slightly narrowed at the base, where it encloses the anterior ocellus; the keels bounding it are large, acute, and from their apices at the sides a keel unites them to the eyes; the front is raised above the antennæ, the raised part obliquely depressed at the top. Occiput not margined. Wings with two radial and four cubital cellules; the lanceolate cellule open, without a cross nervure; the hinder wings with two cubital cellules, the accessory nervure appendiculated, the basal nervure is received distinctly in front of the cubital, as in *Tenthredo*. Legs moderately slender, the claws unequally bifid; the calcaria short, not one-fourth of the length of the metatarsus.

This genus has the neuration of *Siobla* or *Selandria*, except that in the latter the basal nervure is united to the cubital. It differs markedly from both in the long, slender antennæ, in the incised apex of the clypeus, in the frontal area being sharply and clearly bounded by distinct keels, and in it being united to the eyes by a keel. The wings are rather longer than usual, the costa is not so much dilated before the stigma as in *Selandria*, the sutures on the vertex are distinct, narrow, but deep; the head moderately developed behind the eyes, but not quite so much so as in *Siobla*. It is further a much more slenderly built insect than *Siobla* or *Selandria*, more like *Stromocerus*.

BUSARBIA VIRIDIPES, *sp. nov.*

*Nigra; scapo antennarum, linea pronoti, tegulis maculaque mesopleurali albis; pedibus pallide viridibus.* ♀.

Long. fere 6 mm.

Antennæ filiform, longer than the abdomen, black; the basal joint white; the flagellum covered with short, stiff, black pubescence; the third and fourth equal in length. Head black, the clypeus, labrum, the base of the mandibles broadly, and the palpi, white; shining, impunctate; the frontal area with some obscure striæ. Thorax shining, impunctate; the hinder part of the pronotum broadly, the tegulæ, a large oblique mark on the hinder part of the mesopleuræ—broad at the base, gradually narrowed towards the apex—clear white. Wings large, hyaline, the nervures black, the lower part of the stigma fuscous. The second cubital cellule is distinctly longer than the <sup>third</sup> <sub>second</sub>; and receives the recurrent nervure near to the apex; the second shortly before the middle of the cellule; the basal nervure shortly before the middle; the radial nervure curved above, its lower part almost perpendicular.

Legs uniformly greenish white, except the apices of the tarsi, which are blackish. Ventral surface, except at the apex, pale fulvous-testaceous, perhaps discoloured.

The colour of the legs when the insect was alive was probably of a bright, delicate green, which has doubtless faded, as does the green of *Strongylogaster delicatulus* Fall., with age.

### SUNOXA, gen. nov.

Head scarcely developed behind the eyes, the front and vertex forming one piece without a suture; the frontal area obsolete. Mesonotum trilobate. Legs stout; the hinder coxae large; the basal joint of the hinder tibiae dilated, hollowed on the outer side; about two-thirds of the length of the hinder tibiae and twice the length of the other joints united; the second as long as the third and fourth united, stout; the last as long as the preceding two united; the patellae obsolete; the claws with two unequal teeth. The basal nervure is united to the cubital; there are two cubital cellules in the hind wings.

Belongs to the *Selandriades* and comes near to *Siobla* and *Strongylogaster* with which it agrees in the alar neuration, but differs markedly in the head not being developed behind the eyes and in the great length and size of the metatarsus, which is longer in proportion to the other joints than in any genus known to me. Unfortunately the antennae are broken off.

### SUNOXA PURPUREIFRONS. sp. nov.

*Lutea; capite caeruleo, ore fulvo-testaceo; femoribus, apice tibiarum tarsisque posticis nigris; alis fusco-violaceis.*

Long. 6? mm.

Head small, dark purple, the clypeus, labrum, mandibles, except their teeth, and palpi pale fulvo-testaceous.

The front and vertex strongly and uniformly punctured ; except the sides of the vertex where it is smooth and dull brownish outside the furrows, which are deep behind the ocelli, obsolete at their sides ; on the front, shortly above the antennæ is a smooth conical fovea ; the clypeus is finely punctured, transverse at the apex, the sides oblique. Thorax smooth, shining, impunctate ; the mesonotum thickly covered with short, black hair. The radial nervure is received in the apical, the recurrent nervures in the basal, fourth of the cellules ; the transverse humeral in the basal third. Legs coloured like the thorax, but paler, more yellowish, especially the front pair, the hinder femora and tibiæ, except at the apex, and the hinder tarsi black with a purplish tinge, the middle tarsi fuscous. Abdomen with the basal segments luteous ; the apex broken off.

*EMPHYTUS PILIFRONS, sp. nov.*

*Niger, capite dense hirsuto ; basi antennarum, orbitis oculorum, linea pronoti clypeoque rufis ; pedibus nigris, basi tibiarum albo ; alis hyalinis, apice fumatis.* ♂.

Long. 8-9 mm.

Antennæ dull black ; the scape and second joint clear fulvous ; the flagellum brownish beneath, thickly covered with short, stiff hair. Head black, thickly covered with short, pale hair ; the vertex shining, the front opaque, granular ; the keels on the vertex deep, curved ; the clypeus at the base broadly, the inner orbits, a mark behind the eyes near the hinder edge, fulvous ; the apex of the clypeus obliquely depressed, roundly incised and brownish ; the labrum large, rounded at the apex, pale testaceous and fringed with long, white hair ; the palpi blackish. Thorax black ; the edge of the pronotum broadly, the lower edge of the propleuræ and the tegulæ, fulvous. The middle lobe of the mesonotum opaque,

finely rugose; the lateral smooth and shining. Scutellum coarsely rugosely punctured. Mesopleuræ opaque, thickly covered with short, white hair, obscurely rugose above. Abdomen black; the basal three segments in the middle above, more or less at the sides and the ventral surface entirely, white; the other segments narrowly white at the apex, the apical broadly so. Legs black, thickly covered with pale pubescence; the anterior tibiæ almost entirely, and the bases of the hinder four, white. Wings hyaline; the costa and stigma testaceous; the radial cellule, the upper part of the cubital cellules, except the base of the first, smoky; the transverse basal nervure interstitial.

**EMPHYTUS MACULIVENTRIS, sp. nov.**

*Niger; tibiis anticis abdomineque subtus albis; alis hyalinis, apice fumatis.* ♀.

Long. 9 mm.

Antennæ black, the middle joints thickened. Face closely and rather strongly punctured; the clypeus smooth, above forming a semicircle, its edge projecting; the labrum large, smooth and shining, rounded; the face and clypeus covered with long, pale hair. The middle lobe of the mesonotum is finely rugose, furrowed down the middle, and thickly covered with short, black hair; the lateral lobes finely punctured, less pilose and more shining. Scutellum pyramidal, brought to a point in the middle above; coarsely rugosely punctured; the part behind the cenchri obliquely depressed; the sides of the depression carinate. Propleuræ rugose, smooth and shining at the base; the mesopleuræ, except on the lower side, coarsely punctured, the punctures large, round, and distinctly separated; the metapleuræ smooth. Legs thickly covered with white hair, especially thick on the tibiæ and tarsi; the spurs and claws rufous; the claws

bifid, the joints sub-equal. The cloud in the fore wings occupies the whole of the radial cellule, the first cubital, except an oblique corner at the base, the upper half of the second, and a narrow band on the top of the third. The upper part of the second and third abdominal segments, narrowly in the middle, and their sides more broadly, white, the marks on the sides being narrowed at the top.

EMPHYTUS RUFICEPS, *sp. nov.*

*Brunneus nigro-maculatus*; apice antennarum nigro; pedibus pallidis; femoribus apiceque tibiarum posticarum nigris; alis fere hyalinis, apice fumatis, stigmate ochraceo. ♀.

Long. 10 mm.

The scape of the antennæ pallid white; the second, third, fourth, and the base of the fifth joints reddish-testaceous; the apical joints black. Head rufous; the labrum, the inner orbits, a mark above each antenna and the outer orbits, except at the top, whitish-yellow; the space between, above in the middle, and the entire surface below them, black. The clypeus is closely punctured; its apex has a semicircular incision, and is obliquely depressed; the labrum is smooth. The front is closely and rather strongly punctured; its raised central part broadly margined with black, which is continued between the hinder ocelli; the vertex is less strongly punctured; the middle slightly raised, the raised part bordered by narrow, but distinct, furrows; the lower part of the occiput is black. The middle lobe of the mesonotum is black, except at the sides and apex; and is furrowed down the centre; the lateral lobes are black at the apices; the parapsidal furrows are wide and deep. Scutellum roundly convex; the apex with a longer slope than the base. The postscutellum depressed at the base,

smooth, yellow, as are also the lateral keels. Pleuræ coarsely punctured, thickly covered with short, white hair ; the propleuræ black, rufous above, pallid yellow below. Mesopleuræ rufous, marked with yellow on the lower part ; the base, apex and the mesosternum, black. Metapleuræ black. Legs pale testaceous ; the fore coxæ black at the base, the hinder pair black below ; the four anterior femora marked broadly with black above ; the four hinder tibiæ broadly at the apex all round and above the middle behind ; the tarsi are dark testaceous ; the claws are bifid. The radial cellule is entirely brownish-smoky, the smoky tint extending on to the top of the cubital cellules. The basal half of the median segment black, the apical yellowish, deeply furrowed down the middle ; the other segments black, yellowish testaceous on their apices ; the last segment entirely so ; the sheath of the ovipositor pallid yellow.

#### SELANDRIA PILICORNIS, sp. nov.

*Nigra, abdominis basi late testaceo ; coxis, trochanteribus, tibiis anterioribus basique tibiarum posticarum albidis ; alis fumatis, basi fere hyalinis.* ♀.

Long. 10 mm.

Antennæ as long as the head and thorax united, thickly covered with long, stiff, black hair ; the third joint is slightly, but distinctly, longer than the fourth. Head large, largely developed behind the eyes, but not projecting beyond them ; shining, impunctate, thickly covered with fuscous hair, and with a bluish violet tint ; there is no frontal area, nor any furrows or depressions on the vertex. Clypeus strongly punctured, the apex transverse, the sides rounded ; labrum white, thickly covered with long, white hair ; mandibles piceous in the middle ; the palpi black, covered with white hair. Thorax shining, impunctate,

covered thickly with moderately long, fuscous hair; at the base of the scutellum is a wide and deep semicircular depression. All the coxae and trochanters are white; the tibiae are for the greater part white behind; all the legs thickly covered with short, white hair; the claws are bifid. The second cubital cellule is shorter than the third; the first transverse cubital nervure is faint; the transverse basal nervure is received the length of the first transverse cubital nervure from the cubital; the first recurrent in the middle. In the hind wings the humeral nervure is received beyond the transverse brachial, nearer the apex. On the abdomen the apex of the first, the second to fourth, and the greater part of the fifth segments are testaceous.

SELANDRIA FUSCINERVIS, *sp. nov.*

*Nigra; coxis, trochanteribus, basi tibiarum late tarsisque anterioribus albis; alis hyalinis, stigmate nervisque fuscis.* ♀.

Long. 9 mm.

Antennae short, stout, distinctly tapering towards the apex, thickly covered, especially at the base, with short, stiff, black pubescence, the third joint is distinctly longer than the fourth. Head shining, impunctate, the front and vertex thickly covered with fuscous, the face with longer, paler hair; that on the labrum being the longest; the frontal area obsolete; the furrows on the vertex distinct, except at the base; above the antennae is a deep fovea, broader than long, rounded at the base and sides, more transverse at the apex; the sides oblique. Apex of clypeus transverse, its sides rounded; the mandibular teeth piceous; the palpi fuscous-black, covered thickly with pale pubescence. Mesonotum shining, impunctate, thickly (especially at the base) covered with fuscous pubescence. Pleuræ shining, the apex of the propleuræ rough. Legs black; the apex of the coxae, the trochan-

ters, the base of the four anterior coxae, the apex of the posterior pair more broadly, especially behind; the base of the four anterior tibiae, and the hinder, except at the apex, white; the tarsi fuscous; the claws are bifid. The second cubital cellule is nearly as long as the third; the first transverse cubital cellule is almost obliterated; the first recurrent nervure is received in the basal third; the second quite close to the second transverse cubital nervure, in one example almost united to it.

SELANDRIA CAERULEICEPS, *sp. nov.*

*Caerulea, abdomine nigro; linea pronoti, coxis, trochanteribus basique tibiarum late albis; alis hyalinis, nervis stigmataque nigris.* ♀.

Long. 8 mm.

Antennae short, distinctly tapering towards the apex; black, thickly covered with short, stiff hair. Front and vertex shining, smooth; frontal area obsolete; the furrows bordering the ocelli distinct but shallow; a depression before the anterior ocellus; the vertex bordered by a furrow in front. Clypeus strongly and closely punctured, bluish-coppery in tint; the labrum white; both are thickly covered with long, white hair; the mandibles are piceous before the teeth; the apices of the palpi pale. Thorax shining, impunctate, thickly covered with short pubescence. Wings almost hyaline, the stigma and nervures black; the first transverse cubital nervure is obliterated at the base; the second cubital cellule is, if anything, longer than the third, and receives the recurrent nervure shortly before the middle; the second is received near the base of the cellule; the transverse radial nervure is received in the apical fourth of the third cubital cellule; the transverse humeral nervure shortly beyond the middle; the accessory nervure in the hind wing is almost inter-

stitial. Legs thickly covered with white pubescence ; the coxæ, trochanters, knees and the base of the tibiæ white ; the calcaria testaceous ; the claws bifid, but unequal in length. The cenchri large ; the part between them semi-circularly depressed.

ERIOCAMP A PUNCTATA, *sp. nov.*

*Nigra; capite thoraceque punctatis; alis fumatis.* ♂.

Long. 10-11. mm.

Antennæ as long as the abdomen, stout, covered with a microscopic pile ; the third joint twice the length of the fourth. Front and vertex strongly punctured, the frontal area horseshoe-shaped ; the bounding keel large, broad, punctured, extending behind the front ocellus ; the vertex behind the ocelli raised, the raised part distinctly margined ; the occiput sharply margined, projecting into a short tooth behind the vertical furrow. The clypeus is closely and strongly punctured as is also the labrum ; both are bluntly rounded at the apex ; the head above the antennæ is thickly covered with short, fuscous, below with longer, white hair. Mesonotum shining, strongly, but not closely or coarsely, punctured ; the scutellum with the punctures equally large but more widely separated ; the metanotum closely and strongly punctured, widely and deeply depressed at the base. Legs black, the calcaria paler ; the claws bifid, rufous ; the tibiæ and tarsi thickly covered with pale pubescence ; the inner spur of the anterior calcaria is dilated at the apex, and ends in two spines, the inner being broader and shorter than the outer. The third cubital cellule is longer than the second, the first recurrent nervure is received shortly before the middle, the second not far from the base of the cellule ; the transverse median is received near the basal nervure. Abdomen smooth and shining. On the legs the patellæ are large and well developed ; the blotch is small.

A distinct species. Is perhaps not a true *Eriocampa*. In the latter the clypeus is deeply incised, the transverse basal nervure is received quite close to the base of the radial nervure, while in the present species it is much more widely removed from it, and the clypeus is transverse at the apex.

*Obs.* I described (*Trans. Ent. Soc.* 1876, p. 461) a *Monophadnus bengalensis* from Bengal which Mr. Kirby (*List of Hymen.* i., p. 185) states is an *Eriocampa*. If so, his figure (*pl. viii. f. 17*) is wrongly drawn, for the fore-wing is that of a *Monophadnus*, not of an *Eriocampa*. On the same plate (*fig. 9*) Mr. Kirby figures a *Monophadnus lineatus*, from Hudson's Bay, which is certainly an *Eriocampa*, if the figure is correct.

#### ERIOCAMP $\alpha$ MAJOR, *sp. nov.*

Long. 13 mm.

Agrees in coloration with *E. punctata*, but may readily be separated from it by the head not being narrowed behind the eyes, by its being behind almost transverse, not distinctly concave, and by the eyes not converging so much below.

Head rugosely punctured, thickly covered with short, white hair on the vertex, with longer hair on the face and clypeus. The vertex behind the ocelli raised and separated from the sides; its centre with a fine, longitudinal keel. Clypeus projecting; its apex bluntly rounded; the labrum smooth, brownish, thickly covered with long, pale hair; the palpi are fuscous. Behind the eyes the head is rounded, but not narrowed; it is there nearly as long as the eyes. Mesonotum closely punctured, thickly covered with short, white hair; the middle lobe is more shining than the lateral, and finely furrowed down the middle. Scutellum rounded; its basal half smooth, very shining, with hardly any punctures; its apical half rugosely punctured, opaque, and covered with long, pale hair. Metanotum rugosely punctured; the cenchri cream-

coloured. Pleuræ opaque, closely punctured; the sternum shining, and not quite so strongly punctured. Abdomen shining, smooth, the apical segment pale testaceous. Wings uniformly fuscous-hyaline; the nervures and stigma black; the first recurrent nervure is received shortly beyond the middle; the second quite close to the second transverse cubital nervure. Legs black, the fore femora and tibiæ in front for the greater part fusco-testaceous; the patellæ are well developed; the claws bifid.

The antennæ are absent. The species is very large for an *Eriocampa*, but does not appear to be separable from it.

MONOPHADNUS LATICARINATUS, *sp. nov.*

*Niger; prothorace, mesonoto cum scutello, mesopleurisque sanguineis; coxis, trochanteribus femoribusque posticis subtus albis; alis fumatis.* ♀.

Long, fere 6 mm.

Antennæ short and thick, thickly covered with short, stiff, black hair; the third joint about one-quarter longer than the fourth. Head black, shining; the pentagonal area clearly defined; its apex widened and round, and not so clearly limited as the sides; between it and the antennæ is a large area with thick walls; it is slightly wider than long, and has a keel down the middle. The clypeus is shining, its apex rounded; the labrum is fringed with long, white hair; the palpi long, black, covered with a pale down. Thorax shining, impunctate, thickly covered with pale pubescence; the parapsidal furrows deep; the middle lobe is deeply furrowed except at the apex. Legs black; all the knees, the hinder coxæ, trochanters, femora, except above, and the base of the hinder tibiæ, white. Wings fuscous, the stigma and nervures black; the trans-

verse radial nervure is received shortly, but distinctly, beyond the middle of the cellule; the first recurrent nervure is received almost in the middle; the second distinctly before the middle of the cellule. Abdomen shining, glabrous; the sheath of the ovipositor thickly covered with short, pale hair; its lower side has a distinct curve from the apex to beyond the middle.

MONOPHADNUS DILUTIPENNIS, sp. nov.

*Niger; geniculis tibiisque late flavis; alis fusco-hyalinis, stigmate testaceo.* ♀.

Long. 6 mm.

Antennæ short, thick, as long as the head and thorax united, thickly covered with short, black pubescence. Head thickly covered with short, black hair; the ocellar area somewhat horseshoe-shaped, open in front, the bounding keels broad, distinct; it is raised, and, laterally, is bounded by a deep and wide furrow; the front with a short, stout keel above each antenna; the space between them depressed, and with a broad aciculated keel in the middle. Clypeus shining, its apex rounded; covered, but not very closely, with minute punctures, and thickly with longish, black hair; the labrum is brownish, closely punctured. Thorax shining, impunctate; the mesonotum thickly covered with short, black hair. The metanotum forms a semicircle, and is widely depressed; the cenchri being inside the depression. Legs thickly covered with white down; all the knees, the basal third of the front tibiæ, the basal half of the middle pair and the hinder, except at the apex, white. The stigma is large; it and the costa are testaceous; the nervures are of a darker tint; the first recurrent nervure is received in the middle, the second in the basal third of the cellule. Abdomen black and shining; pubescent towards the apex; the

sheaths of the ovipositor covered at the apex with long, white hair.

### PROCTOTRUPIDÆ.

#### EPYRIS FUSCINERVIS, *sp. nov.*

*Nigra, nitida; geniculis, tibiis tarsisque testaceis; alis fusco-hyalinis, costa nervisque testaceis; antennis nigris, basi flagelli testaceo.* ♀.

Long. 4 mm.

*Hab.* Barrackpore (*Rothney*).

Antennæ stout, the apex of the scape, the base of the flagellum distinctly, its middle indistinctly, testaceous; the scape roundly curved on the under side. Head shining, impunctate; the antennal tubercles testaceous. Prothorax not quite so long as the head; the collar obscure testaceous, shagreened, shining. Mesonotum shining, minutely and not very distinctly punctured; a narrow, but distinct, furrow down the sides opposite the sides of the scutellum, which is shining, impunctate, and with a wide, moderately deep and slightly curved furrow at its base. Median segment closely punctured, most strongly at the base, becoming weaker towards the apex; down its centre runs a distinct keel which reaches the apex of the basal part; on either side of this is a narrower, less distinct, keel which reaches to about the middle only; the apex is sharply oblique. Legs stout, the four anterior knees, tibiæ and tarsi, the posterior trochanters, the posterior tibiæ and tarsi dark testaceous; the four hinder femora are obscure testaceous in the middle, as are also the trochanters. Abdomen shining, the apices of the second and following segments, and nearly the whole of the last, testaceous. The first basal cellule is sharply oblique, the second (and lower) rounded at the apex.

Appears to be a true *Epyris*; but the parapsidal

furrows are only visible with a good lens. It is much smaller than the two described species which are both 10 mm. in length.

## EVANIIDÆ.

## EVANIA.

Only one species of this genus has been recorded from Continental India—*E. antennalis* West., from Bombay. It, and the two species here described, may be separated by means of the following table:—

- 1. (2) Legs and body entirely black; metasternal process widely diverging at the apex; the front distinctly keeled in the middle. *E. antennalis* West.
- 2. (1) Legs and body not entirely black; metasternal process not widely diverging; legs marked with white.
- 3. (4) Thorax red; base of flagellum white; face with two oblique keels running from the eyes. *E. curvicarinata*.
- 4. (3) Thorax and base of flagellum black; face not keeled. *E. albitarsis*.

✓ EVANIA CURVICARINATA, *sp. nov.*

*Nigra; facie alba, thorace rufo; annulo antennarum, basi tibiarum trochanteribusque albis; tarsis posticis fuscis, basi albis; alis hyalinis.* ♀.

Long. 6-7 mm.

In coloration comes near to the Ceylonese *E. erythro-soma*, but that differs from it in many respects, e.g., in having the face longitudinally striated and keeled down the middle, and in wanting the oblique lateral keels found in the present species.

Antennæ stout, black; the basal two joints of the flagellum for the greater part white, except on the apex of the second, which is black all round; the third joint is

as long as the scape and distinctly longer than the fourth. Head black, smooth, shining, impunctate; the eyes on the inner side very slightly diverging beneath; from shortly below their middle a distinct keel runs obliquely to the basal third of the clypeus; the face in the middle flat, neither furrowed nor keeled. Mandibles before the teeth reddish, below fringed with whitish hair; the palpi fuscous-testaceous. Thorax rufous; the apical three-fourths of the median segment and the metasternum, black. Mesonotum blackish in the middle near the apex; the middle shagreened; the sides minutely punctured; the furrows straight, oblique, converging at the apex, not reaching to the base of the scutellum, which is closely and finely punctured. Median segment strongly reticulated, except a small semicircular, finely punctured, space at the base; and the base of the metapleuræ which is closely and obliquely striated, especially below; the centre on the upper side is smooth and impunctate. The pro-sternum is black and impunctate; the meso- rufous like the rest of the thorax; the base irregularly transversely striated, bearing large, round, deep punctures, and furrowed down the middle; the metasternum has on either side a curved keel, and there is a straight one down the middle; the metasternal process short, triangular, very slightly diverging at the apex; but through their triangular form the apices are widely separated. Wings hyaline, the stigma black; the nervures fuscous, the apical paler; the cubital nervure obliterated beyond the first transverse cubital nervure; the second transverse cubital nervure obliterated; the only recurrent nervure is nearly interstitial. All the trochanters are white; the front femora are black, except at the base and apex; the fore tibiæ are obscure fusco-testaceous; the middle tibiæ and tarsi blackish; the base of the hinder tibiæ and the metatarsus, white; the hinder coxæ are

closely transversely punctured, more strongly at the base than at the apex; the long spur of the hinder calcaria reaches near to the middle of the metatarsus; the tarsi have no spines. Petiole with a few large punctures; its apex broadly white; the rest of the abdomen very smooth and shining.

EVANIA ALBITARSIS, *sp. nov.*

*Nigra; facie, tarsis, trochanteribus, annulo tibiarum posticarum apiceque petioli albis; alis hyalinis.* ♀.

Long. 7 mm.

Antennæ brownish, testaceous beneath, fuscous above, darker towards the apex; the scape on the under side thickly covered with longish white hair; the flagellum with a sparse microscopic down. The face from below the antennæ, a triangular space above them touching the eyes, the mandibles and the palpi yellowish-testaceous; the top below the antennæ and the part immediately below the eyes fulvous, thickly covered with white hair; the fulvous-coloured space below the antennæ rather strongly punctured; slightly projecting, narrowed slightly and gradually towards the apex, where it is transverse. Mandibles strongly toothed, the teeth black. The hinder ocelli are separated by about the same length from each other as they are from the eyes; immediately behind them is a distinct, straight, moderately deep, transverse furrow. Thorax entirely black; the mesonotum shining, obscurely punctured; its middle lobe distinctly separated from the lateral; raised at the base; narrowed towards the apex; the dividing furrows deep; the transverse furrow at the base of the scutellum deep, and extending, slightly obliquely, beyond the lateral ones. Scutellum obscurely punctured, thickly covered with fuscous hair; at its base is a narrow, oblique furrow. The base of the median

segment is oblique ; obscurely punctured ; the sides at the base distinctly and strongly reticulated, this being also the case under the petiole ; the apex closely punctured, the punctuation running into indistinct reticulations. The lower part of the propleuræ strongly irregularly striolated, distinctly margined at the base and apex ; the upper part of the mesopleuræ smooth in the middle ; the posterior half raised ; the base of the raised part crenulated ; the basal part of the lower region bearing large, deep, round, distinctly separated punctures ; the punctured part of the mesonotum is separated from the upper and basal by an oblique furrow. The anterior legs are pale testaceous, except the coxæ which are black and the middle femora which are infuscated ; the hinder coxæ are black, strongly punctured on the basal half, the apical part closely striated in the middle above ; the sides and lower part thickly covered with white hair ; the hinder trochanters white, broadly black at the apex above ; the four anterior tarsi are slightly infuscated ; the posterior clear white ; the spurs are black ; the longer spur reaches near to the middle of the metatarsus ; the extreme base of the hinder femora is black before the white band. Wings hyaline, the nervures black, except the apex of the radial which is pale ; the second transverse cubital nervure is only indicated at the top ; the recurrent nervure almost touches the apex of the first transverse cubital. Abdomen black ; the apex of the petiole broadly white ; the apical segments obscure testaceous ; the petiole obscurely punctured. The base of the mesosternum is strongly transversely striolated and oblique ; its centre is strongly furrowed ; the sternum between the four hinder legs is strongly irregularly striated on the apical half ; the middle depressed and with a narrow keel down it ; the metasternal processes are short, thick, nipple-like, and hardly

diverging at the apices. The hinder tarsi are slightly spined.

AULACUS BITUBERCULATUS, *sp. nov.*

*Niger; pronoto mesonotoque cum scutello rufis; alis hyalinis, fusco-bifasciatis.* ♀.

Long. 15; terebra 14 mm.

This genus is an addition to the Hymenoptera of Continental India, although two species are known from Ceylon. These differ in many respects from *A. bituberculatus*.

Antennæ black, brownish towards the apex on the under side; the third joint of the length of the basal two united; the fourth as long as the second and third united. Head black; the vertex shining, bearing shallow, scattered punctures; sparsely pilose; the vertex near the edge behind has on either side a distinct, bluntly triangular tubercle. Front sparsely covered with short, white hair; a short, indistinct keel in front of the ocelli; the clypeus closely, shallowly, irregularly punctured; fringed at the apex with long, white hair. Mandibles piceous in the middle, the base opaque, closely rugose. Thorax coarsely rugose; the propleuræ, pronotum, mesonotum and scutellum rufous; the middle of the mesonotum coarsely, transversely striated. The sides of the scutellum smooth; the middle with a few, widely separated, stout, transverse striations; the apex of the scutellum is black. Median segment stoutly irregularly reticulated. Propleuræ irregularly and strongly rugose; the mesopleuræ opaque, irregularly, and not very strongly, rugose below; the oblique hollow over the middle coxæ striated, more distinct on the lower than on the upper part; the middle behind smooth, the upper irregularly reticulated; the lower part stoutly irregularly striated. Metapleuræ rugose, below

transversely striated. Legs black, the apex of the hinder tibiæ and the hinder tarsi fulvo-testaceous. Wings hyaline, the apex and a spot below the basal two-thirds of the stigma, extending on the lower side slightly beyond the cubital nervure, brownish ; the nervures blackish ; the first transverse cubital nervure fuscous, almost obliterated on the lower side ; the second very faint, except at the top. Abdomen smooth, shining, the apex of the last segment pale ; the petiole distinctly separated, three times as long as broad.

This species belongs to the small group, named by Westwood *Aulacinus*, distinguishing by having three complete cubital cellules. The first cubital cellule at the top is about one-third of the length of the top of the second ; at the bottom the two are about equal in length ; the recurrent nervure is received somewhat less than the length of the top of the first cubital cellule from the second transverse cubital nervure. The form of the discoidal cellule is also as in *Aulacinus*, i.e., the first recurrent nervure is not united with the first transverse cubital nervure, but received considerably in front of it.

#### WROUGHTONIA, *gen. nov.*

Front depressed, in the centre immediately over the antennæ armed with a large, stout tooth, which is bluntly rounded at the apex. Labrum large, rounded. Mandibles stout, short, with one blunt, short upper tooth on the apex as seen from the inside. Eyes oval, not reaching to the base of the mandibles. Scutellum pyramidal. Metathorax elongate. Wings with two transverse cubital nervures and consequently two cubital cellules ; the cubital nervure originates near the top of the transverse basal ; the first recurrent nervure is received in the apical third of the first cubital nervure ; the others are obliterated

entirely; the transverse median nervure is received shortly in front of the transverse basal. Abdomen shorter than the thorax; the petiole large, longer than the second segment, not much narrowed towards the base. Legs elongate, the hinder coxae large; the hinder femora with a sharp tooth on the under side near the apex; the lower side behind the tooth with a rough edge.

This genus appears to me to be a valid one; possessing four good characters whereby it may be separated from *Aulacus*, namely (1) by the presence of a stout horn on the front, which is also more depressed in the centre and having the depression margined laterally by a blunt keel, (2) the pyramidal scutellum, (3) the much broader and shorter petiole, and (4) the spined hinder femora. Further points of differences are—the almost unidentate mandibles, which are also shorter and blunter; the antennæ placed higher up on the face, being situated opposite the middle of the eyes; the larger, hollowed postscutellum; the more elongated metathorax; the more elongated hinder coxae; and the shorter abdomen.

The tuberculated head and the spined femora shows some relationship with *Megischus*, from which it is very different in other respects.

#### WROUGHTONIA CORNUTA, *sp. nov.*

*Nigra, abdominis basi flavo; pedibus fulvis, apice femorum posticorum apiceque tibiarum posticarum late nigris; tarsis posticis albis; alis hyalinis, stigmate nervisque nigris.* ♀.

Long. 8-9; terebra 9 mm.

The basal two joints of the antennæ rufous beneath; the base of the flagellum black, the other joints broken off. Head black, the front and vertex shining, smooth, glabrous; the face rugosely punctured; in the centre

above, coming from the base of the antennæ, are two keels which become stouter and converge, but do not unite, at the apex above the base of the clypeus, the two being united there by a stouter transverse keel. The clypeus is transverse at the apex; rounded at the base, the middle depressed. Mandibles short, thick, rufous in the middle; the apex with a depression in the centre. Palpi long, sparsely covered with short, pale hair; the basal joint of the maxillary black. Thorax black, shining; the base with a semiperpendicular slope; the middle lobe of the mesonotum raised, distinctly separated from the lateral at the base; the latter are more shining. Scutellum pyramidal, sharply pointed in the middle on the top; the base punctured, the sides with two or three stout keels. Post-scutellum depressed above, rounded at the apex, which is raised in the centre. The median segment elongate, the base distinctly separated from the apex of the mesonotum; in the centre are two stout keels, which enclose a smooth, shining, glabrous area, narrowed at the base, the sides strongly irregularly transversely striolated. Propleuræ stoutly, obliquely and widely striolated; the upper part finely and closely striated. Mesopleuræ smooth, shining, and glabrous; the base and apex crenulated; the upper part under the wings raised, the raised part finely and closely punctured, and gradually narrowed towards the apex. Metapleuræ coarsely reticulated; the base above depressed, thickly covered with long, white hair. Mesosternum shining, smooth, thickly covered with short, black hair; the central furrow broad, rather shallow, the apical half with some transverse keels. Wings hyaline with a very slight fuscous tinge; the two transverse cubital nervures have an oblique slope, and are both bullated on the lower side; the recurrent nervures are entirely obliterated. Legs fulvous;

the apex of the hinder trochanters, the extreme base of the hinder femora, their apical fourth deeply, and the apical third of the tibiæ, black, the black on the latter not so deep at the base; the tarsi pale. Abdomen black, shining; the petiole whitish-yellow.

GASTERUPTION MANDIBULARE, *sp. nov.*

*Nigrum; mandibulis rufis; macula ad basin tibiarum posticarum rufo-testacea; alis hyalinis.* ♀.

Long. 12-13; terebra 13 mm.

Antennæ as long as the head and thorax united, smooth, bare; the third joint shorter than the fourth, being about two-thirds of its length. Head opaque, the front and vertex alutaceous, almost glabrous; the hinder ocelli separated from each other by about the same distance which separates them from the eyes; the occiput with a narrow, sharp, distinctly separated border, which is pale on the outer edge; the face thickly covered with white pubescence; the mandibles rufous, the teeth black; the palpi blackish. Pronotum closely transversely striated, deeply furrowed down the middle. Mesonotum opaque, shagreened, bearing scattered, shallow punctures; the apex in the middle irregularly striated and punctured. Scutellum finely rugose; the sides above with a curved crenulated furrow; the sides below at the apex strongly longitudinally striated. Median segment under the petiole transversely striated, the striations at the base bent down in the middle; the apical ones somewhat stronger and more irregular. Propleuræ strongly shagreened; an oblique shallow furrow in the middle, which is striated behind; the mesopleuræ thickly covered with silvery pubescence; behind obliquely depressed, irregularly striated. Metapleuræ closely reticulated. Legs black; the extreme base and apex of the front

femora, the base of the four front tibiæ more broadly, and a band near the base of the hinder tibiæ, yellowish-testaceous; the hinder coxæ finely striated on the apex outside. Wings clear hyaline; the stigma pale testaceous below; the upper discoidal cellule long and narrow, the lower shorter and open below. Abdomen black, bearing towards the apex a pale down; the apex of the sheaths of the terebra annulated broadly with white.

## BRACONIDAE.

### CYCLOSTOMI.

#### BRACON.

**A.** *Abdomen greatly lengthened, over three times the length of the head and thorax united; cylindrical, the secundiform articulation obsolete. Legs slender, the hinder not reaching to the apex of the abdomen; the wings much shorter than the abdomen.*

Apart from the form and extreme length of the abdomen there is no tangible difference between this species and *Bracon*. The legs are much more slender than is usual in that genus; the second cubital cellule is short, at the top not longer than the first at the bottom; the recurrent nervure is received in the apical fourth of the cellule, distinctly distant from the first transverse cubital.

#### BRACON LEPTOGASTER, sp. nov.

*Capite, thorace, pedibusque anterioribus rufis; antennis, abdomine pedibusque posticis nigris; alis fusco-hyalinis, stigmate ochraceo; terebra corpore fere longiore.* ♀.

Long. 23 mm.

Antennæ black, filiform, shorter than the abdomen, the scape covered with long, stiff, black hairs. Face yellowish, sparsely punctured, somewhat thickly covered

with fuscous hair ; the clypeus rufous ; mandibles yellow, rufous before the teeth, which are black ; the palpi long, pilose, fulvous-yellow. Front and vertex shining ; impunctate ; the vertex and the upper part of the front broadly in the middle, black ; the ocelli surrounded by a furrow, which is prolonged down the middle of the front ; the occiput black in the middle, the black mark becoming gradually narrowed downwards. Thorax smooth and shining ; the parapsidal furrows deep and wide ; the apex of the scutellum and the post-scutellum yellowish ; the median segment with a furrow down its middle ; it is narrow at the base, wider and deeper at the apex. Above the middle of the mesopleuræ is a wide and deep, slightly oblique furrow which extends from the base to the apex. The mesosternum has a wide and deep furrow down the middle, which becomes wider and deeper at the apex. Wings smoky, darker at the apex ; there is a small, distinct, black cloud at the base and apex of the stigma, the apical one occupying the base of the radial cellule ; the stigma in the middle, between the clouds, luteous. The four anterior legs uniformly rufous, the posterior black ; the apex of their trochanters and the spurs luteous ; the tarsi brownish beneath. Abdomen black ; fully three times as long as the head and thorax united ; the basal segments rough, the apical smooth in texture ; the basal furrowed in the middle at the base ; the sides depressed, wider at the base where they form a stout keel, which becomes gradually wider ; at its base it is rufous ; the raised basal part of the third segment is broader and shorter, dark rufous ; the lateral depression at the base is transversely striated ; the base of the third segment is flat, strongly irregularly striated ; the lateral depression on the fifth segment is short, only reaching to the middle of the segment ; the sheaths of the ovipositor thickly covered

with black hair; the epipygium cultriform; the ventral surface dirty yellow.

B. Abdomen not greatly lengthened, at the most not much more than twice the length of the head and thorax united, the securiform articulation distinct.

I. Abdomen not striolated.

a. Fore-wings with two black clouds.

*B. orientalis* and *V-macula*.

b. Fore-wings with one black cloud.

*B. simlaensis*, *leptcha* and *phaedo*.

#### BRACON V-MACULA, *sp. nov.*

*Luteus; antennis nigris; capite flavo, supra nigro-maculato; alis flavo-hyalinis, nigro-bifasciatis, apice fuscis.* ♀.

Long. 14-15; terebra 10 mm.

Antennæ as long as the body; the scape shining, bearing a few longish, black hairs; the flagellum brownish beneath. Head yellow; the vertex broadly black; the black continued broadly, triangularly behind and as a square in front, to the base of the antennæ; shining, impunctate; the vertex and front covered sparsely, the face more thickly, with longer, white pubescence; the face is sparsely and indistinctly punctured; the mandibular teeth black; the palpi pale testaceous, thickly covered with white hair. Thorax shining, impunctate, sparsely covered with longish, paler hair; the lobes of the mesonotum infuscated, of a mahogany colour; the furrow on the mesopleuræ is curved and extends from the base to the apex. The upper half of the metapleuræ at the apex is deeply excavated; the sides of the excavation oblique; at the base, continuous with it, is a smaller hollow. Legs ferruginous, the tibiæ and tarsi paler, of a faint yellowish

tinge; on the under side of the hinder coxae is a large V-shaped black mark; and beyond the middle of the hinder femora is a broad black line. Wings yellowish hyaline, a broad, oblique, smoky band is on the apex, at and touching the base of the stigma and reaching to the bottom of the discoidal cellule; at the apex of the stigma is a shorter mark of similar colour, which reaches to the cubital nervure, but not touching the basal corner of the radial cellule; in the lower part of the podiscoidal cellule is a fainter elongated cloud, narrowed at base and apex. Abdomen slightly darker towards the apex (perhaps through discolouration); the base of the second segment above forms in the middle a large, somewhat pyriform, raised area; the narrowed end is at the apex, and has, on either side, a deep, elongate depression, the two depressions being separated by a sharp keel; the third, fourth and fifth segments have the lateral and oblique apical transverse depressions distinct; in the middle of the third segments the keel is formed at the base into a clearly defined, triangular, raised space. The ventral surface at the base is obscure lemon-yellow.

~ BRACON ORIENTALIS, *sp. nov.*

Long. 13; terebra 15 mm.

Similar in the colour of the body and wings to *B. V-macula*, but may be known from it at once by the form of the area on the second abdominal segment; in *V-macula* it is elongate, fully twice as long as the greatest width, and with the apex conical; in the present species it is hardly longer than it is broad, with the apex distinctly triangular; the depression at the base is broader and without a keel.

Antennæ black, distinctly longer than the body; the scape on the lower side thickly covered with longish,

black hair; the flagellum bare, but not smooth. Head yellow, impunctate; the face thickly covered with long, pale hair; the front and vertex smooth, almost glabrous. The front in the middle and vertex broadly black; the black on the vertex continued half way down the back, becoming narrowed towards the apex. Tips of the mandibles black. Thorax shining, impunctate, thickly covered with long, soft hair, which is darker on the mesonotum. The middle lobe of the mesonotum is raised; the middle at the apex is quite flat; the scutellum raised; at the base transverse and bordered by a straight furrow. The apex of the propleurae is triangularly raised; the oblique furrow on the base of the mesopleurae is continuous from the base to the apex, and is moderately deep; the oblique furrow on the metapleurae is wide and with a narrow, distinct furrow in the middle. Legs coloured like the thorax, the anterior of a paler, more yellowish hue; on the outer side of the hinder coxae is a broad, somewhat  $\Delta$ -shaped, oblique, black mark. Wings yellowish hyaline; the apices of both broadly smoky; the stigma yellow, black at the apex; in the base of the radial cellule, opposite the black apex of the stigma, is a large, blackish spot, longer than broad; between the base of the cubital nervure and the base of the stigma a slightly narrower and longer cloud runs to the lower apex of the discoidal cellule; in the bottom of the lower discoidal cellule is a fainter cloud, rounded and narrowed at the top, and occupying the lower part of the cellule. Abdomen at the base above coloured like the thorax; towards the apex it is much darker; the ventral surface lemon-yellow; the depression at the base is very deep; the area at the base of the second segment is a little longer than broad, obliquely narrowed at the apex, which almost forms a triangle; on

the third segment there is no transverse furrow at the base; on the fourth and fifth segments the furrows are distinct, forming a triangular space at the base; the basal transverse depressions on these segments are also distinct.

BRACON SIMLAENSIS, *sp. nov.*

*Ferrugineus; flagello antennarum nigro; alis flavo-hyalinis, nigro-unimaculatis.* ♀.

Long. 17; terebra 12 mm.

Hab. Simla.

Antennæ as long as the body; the scape ferruginous, marked with black laterally; the under side thickly covered with long, rufous hairs. Head shining, ferruginous; the face yellowish, the apex of the mandibles black. Front and vertex shining, impunctate, the vertex sparsely covered with long, greyish hairs; the ocellar region raised; the front broadly depressed, with a distinct furrow down its centre. Mandibles black, testaceous at the base; the palpi pallid testaceous; face covered with long, pale hairs, rather strongly punctured, but with the punctures not close together; the base of the clypeus has a distinct curved keel. Thorax shining, impunctate; the base of the pronotum fringed with long, pale hairs; below the middle it is depressed, the depressions having two short, longitudinal keels on either side and two in the middle. The middle lobe of the mesonotum is raised; the apex is flat; the transverse furrow at the base of the scutellum is stoutly crenulated. The median segment has a gradually rounded slope, and is thickly covered with long, pale hair. Pleuræ shining and impunctate; the pro- and meso- very sparsely, the meta- thickly, covered with long, pale hair; the oblique furrow on the upper part of the meso- wide, shallow; the metapleural furrow wide and deep; the part of it behind the spiracles being slightly deeper. Legs

coloured like the thorax, except the anterior, which are paler, more yellowish; the femora are sparsely covered with pale hair; the tibiæ and tarsi very thickly with long, fulvous hair. Wings large, yellowish; the apex faintly infuscated; the nervures and stigma yellow; the extreme apex of the stigma black; at the base of the stigma is a deep, black spot, longer than broad and extending to the recurrent nervure of which it is the exact length. Abdomen dark ferruginous, the apical segments for the greater part blackish; the petiole in the middle is raised behind the triangular depression at the base; the sides depressed, the apex of the raised part rounded; the middle keeled; the second segment is widely depressed laterally; there is a small triangle at the base from which a narrow keel runs down the middle to the apex. The depression at the base of the third segment is stoutly crenulated throughout and is deep; the furrow on the fourth segment is smooth and narrowed. The ventral segments are black laterally; the basal pallid yellow in the middle.

BRACON LEPCHA, sp. nov.

Long. 15 mm. ♀.

Very similar to *B. simlaensis*, but lighter in coloration, especially the abdomen, which is much paler and without black; the median lobe of the petiole is more rounded, the oblique furrow on the mesopleuræ is deeper and more clearly defined, and the face does not project so much. Scape of antennæ rufo-testaceous, a large mark at the base above, and a smaller one at the apex black; thickly covered with long, pale fulvous hair; the basal two joints of the flagellum fulvous, the rest broken off. Face dull yellowish; strongly punctured, the punctures large, but not very deep; moderately thickly

covered with long, pale fulvous hair; the front and vertex very shining, impunctate, the vertex thinly covered with long, pale fulvous hair; the ocelli bordered laterally with a deep furrow; the front without a distinct furrow. The tips of the mandibles are deep black. Thorax shining, smooth, except the depression at the base of the scutellum, which is strongly crenulated. The mesonotum is slightly covered with short, fuscous hair; its middle lobe is not clearly defined; the depression at the base of the scutellum is strongly crenulated, except at the extreme base, where it is smooth. The pronotum in the middle above is broadly and distinctly raised and separated from the sides; behind it is slightly incurved in the middle, with the sides rounded. Pleuræ thickly covered with long, pale fulvous to golden hair; the furrow on the mesopleuræ is broad, moderately deep, oblique, and with a slight curve; the furrow on the meta-pleuræ is curved, slightly narrower than that on the meso-, and is bent sharply downwards in front of the spiracles. Legs covered like the thorax, except that the tibiæ and tarsi have a more yellowish, paler hue, thickly haired, the hair on the front legs being brighter and more fulvous in colour; the claws are black. Wings very large, yellowish hyaline; the apex smoky in both wings; the apex of the stigma is black; at its base is a broad, deep, black spot, extending obliquely from the costa to the recurrent nervure. Abdomen shining, smooth, except for the securiform furrow; and paler, more yellowish in colour, than the thorax; the petiole smooth and shining; the raised middle narrowed and rounded at the base, from which it becomes gradually wider to the apical third; from there it becomes gradually narrowed and rounded; the lateral depression on the second segment curved in the middle, wide, deep in the middle, shallower at the sides; the central keel is complete; the securiform articu-

lation smooth; the middle crenulated; the keels stout, moderately widely separated; the middle keel distinct; the lateral depression large; the central furrow distinct.

BRACON PHAEDO, *sp. nov.*

Long. fere 12 mm. ♂.

Similar in coloration to *B. lepcha*, but smaller, the colour paler, of a more yellowish hue, especially on the legs; the wings also paler, more hyaline; the stigmal cloud smoky, not deep black; the lobes of the mesonotum distinctly infuscated; differing otherwise in the depression at the base of the petiole being larger, deeper and more distinctly triangular; the depressions on the second and third segments deeper and more clearly defined and separated, that on the base of the fourth is irregularly crenulated, not smooth; &c.

Antennæ longer than the body; the scape testaceous, marked laterally with a large, oblique, black mark; the flagellum black; densely covered with a microscopic pile. Head above smooth, shining; the face, especially laterally, of a paler, more yellowish tint; irregularly and rather roughly punctured; the lower part of the face keeled; the apices of the mandibles black; the palpi covered with longish, fuscous hair; the front is shallowly depressed. Thorax shining, impunctate; the middle lobe of the mesonotum slightly, the lateral distinctly, black. The middle of the pronotum is pallid yellow; its apex depressed; the middle of the propleuræ is also pallid yellow and slightly depressed; along the top of the mesopleuræ is a curved, shallow furrow; in the centre of the mesopleuræ is a wider and deeper one, bent in the middle. Legs yellowish-testaceous, darker at the base; the femora sparsely covered with fuscous, the tibiæ and tarsi thickly with paler, hair. Wings yellowish

hyaline ; the apex faintly smoky ; the nervures and stigma yellow ; before the stigma, and extending to the bottom of the discoidal and of the cubital cellule, is a pale brownish cloud. The base of the petiole yellowish ; deeply triangularly depressed ; the sides finely and closely longitudinally striated ; the sides to the apex are deeply and widely depressed and have three central transverse keels and one apical ; the middle sharply and distinctly keeled. The basal three-fourths of the sides of the second segment deeply and widely, the apex more narrowly, depressed ; its centre carinate ; the base of the second segment widely depressed ; in the middle are seven stout keels ; the narrowed sides have a few indistinct keels ; the oblique depression is wide, smooth, and deep ; the fourth and fifth segments are indistinctly keeled in the middle ; the penultimate segment has a curved, black line at the base ; the last is entirely black ; the ventral surface, except at the base, yellowish ; the base black ; in the middle of the penultimate segment is a small, smooth space, rounded at the base, transverse at the apex.

**C. Abdominal segments 2 or 3 distinctly longitudinally striolated.**

1. Thorax flat, the lobes of the mesonotum not raised, scutellum foveate; wings fuscous, yellow at the base.  
*B. himalayensis.*
2. Thorax not flat ; the lobes of the mesonotum distinctly raised ; scutellum not foveate.
  - a. Wings fuscous, the base yellow ; abdomen luteous.  
*B. indiscretus.*
  - b. Wings fuscous ; the abdomen black ; thorax rufous.  
*B. khasianus* and *umbratilus.*
  - c. Wings yellow, marked with fuscous at the stigma and apex.  
*B. seditiosus, dodonaeus, jejunus, declaratus.*

BRACON HIMALAYENSIS, *sp. nov.*

*Luteus, abdomine flavo; antennis nigris; alis nigro-fuscis, basi flavis.* ♀.

Long. 11 mm.

Scape of antennæ thickly covered above with short, below more sparsely with longer, black hair; the flagellum thickly covered with short, black hair; the scape at the apex on the under side is hollowed and with a leaf-like expansion, roundly incised on the top; the second joint on the under side has the basal half roundly and rather deeply incised. Head shining, luteous; the face of a more pallid yellow colour; the apex of the mandibles black; the palpi pale yellow. Front and vertex shining, impunctate, glabrous, except for a few scattered black hairs; the ocellar region black, and surrounded by a narrow furrow; from it a distinct deep furrow runs to the antennæ; the space over each antenna is depressed. Thorax uniformly luteous, shining, impunctate, except the metapleuræ, which are obscurely punctured and covered with long, white hair; the base of the mesonotum gradually rounded; the rest of it, including the scutellum, flat; on the scutellum at the apex in the middle is an oval, flat depression and, on the sides, is a similar depression, but narrower. The median segment is flat, elongate, smooth above, except for a few stout longitudinal striae in the middle at the apex. The propleuræ deeply furrowed at the top and bottom throughout, the middle raised, carinate. Legs thickly covered with long, pale hair; pale on the femora and tibiæ, more fulvous coloured on the hinder tibiæ and tarsi; the apex of the tarsi black. Wings flavo-hyaline to the transverse basal nervure, including the nervures; the rest of them deep fuliginous; the hind wings are yellow for the same distance as the anterior; the base of the stigma is broadly luteous; the

top of the first cubital cellule is hyaline, and, from this hyaline part, a broad hyaline cloud runs obliquely to the apex of the cellule on the lower side; it being also continued for a short distance into the discoidal. The petiole, in the centre, is raised, the raised part distinctly narrowed at the base, this narrowed part being slightly longer than broad and clearly defined from the rest, which becomes gradually, but not very much, wider towards the apex; is of a bright golden colour and longitudinally striolated; the other segments above are longitudinally striated; the segments bear on either side distinct, striated, oblique furrows; in the middle of the second at the base is a stout, distinctly margined keel, which extends to shortly beyond the middle of the segment, becoming gradually narrowed to a sharp point as it does so.

BRACON INDISCRETUS, *sp. nov.*

*Luteus; antennis, vertice, basi mesonoti apiceque abdominis nigris; alis fuscis, basi flavis; stigmate luteo.* ♀.

Long. 13; terebra 10 mm.

Antennæ longer than the body, black, thickly covered with a white down; distinctly tapering towards the apex. Head pale yellow; the front and vertex broadly in the middle, and the upper half of the occiput, black. The front and vertex smooth and shining; the vertex covered with fuscous hair; the front broadly furrowed down the middle; the face thickly covered with long, fuscous hair; its upper part in the middle furrowed; its lower with a black mark. The tips of the mandibles black; the palpi luteous. Thorax yellow, above with a rufous tinge; the prothorax in the middle behind, and the basal two-thirds of the three lobes of the mesonotum, black. Thorax smooth and shining; the mesonotum, the median segment, and the metapleuræ sparsely covered with long, soft, pale hair;

the central lobe of the mesonotum is shallowly depressed in the middle; at its apex is a large, deep fovea, conical at its apex, transverse at the base. The oblique furrow on the base of the mesopleurae is wide; that on the mesosternum wide and shallow. Legs thickly covered with short, fulvous hair; the hinder tarsi with the apical joints fuscous; the wings are yellowish to the transverse basal nervure, except for two fuscous spots on the lower part at the apex; the rest dark smoky, except for a small hyaline cloud below the first transverse cubital nervure; the basal half of the stigma is luteous. The base of the petiole is deeply depressed; the rest of it roundly raised. The basal area of the second segment smooth, flat; the sides of the basal part rounded; the apex triangular; on the apex of the segment is a deep, triangular depression with two thin keels in the middle; the third segment is raised in the centre—broad at the base, gradually narrowed towards the apex—and extending to the middle of the segments, which is depressed on either side of it; the base of the third segment is triangularly raised in the middle at the base, the raised part furrowed down the middle; the fourth segment has two oblique furrows at the base; its apex has a transverse furrow, and is broadly black from the apex to the basal furrows, except down the middle; the apical three dorsal segments are entirely black.

BRACON KHASIANUS, *sp. nov.*

*Niger; capite, pedibus anterioribus, femoribus tibiisque intermediis, prothorace, mesonoto scutelloque fulvo-testaceis; mesonoto nigro- $\beta$ -maculato; alis flavo-hyalinis, apice fere fumatis; stigmate fulvo.* ♀.

Long. 12; terebra 18 mm.

Antennæ entirely black; the scape with a few longish,

black hairs; the flagellum closely covered with a short, stiff, microscopic pile. Head pale fulvous; the ocellar region black; the front and vertex shining, impunctate, the vertex (especially behind) sparsely covered with longish, blackish hair; the hinder ocelli bounded on the outer side by a deep, wide, curved furrow; the front one by a much narrower one. Face obscurely punctured, sparsely covered with long, pale hairs. Apex of mandibles black; the middle rufous, the base pale testaceous; the palpi fulvous. The frontal furrow is wide and deep. Thorax smooth and shining; the prothorax, the mesopleuræ in front of the oblique keel, the mesonotum, except for three large, black marks, the lateral reaching to the apex, but not to the base, and the scutellum, fulvotestaceous. Scutellum smooth, except for a continuous row of large, deep punctures, which extend almost to the edges. Post-scutellum black. The median segment has a gradually rounded slope, and is shining, impunctate and sparsely covered with longish, fuscous hairs. Propleuræ entirely fulvous, and bearing a rather deep, curved furrow in the middle; the mesopleuræ black, except in front of the oblique furrow and for a roundish projection below it at the base; the metapleuræ entirely black, and broadly and deeply excavated from the basal third; there being also another depression over the middle coxæ. Legs thickly covered with pale hair, that on the hinder legs darker and thicker; the two anterior legs are entirely fulvous; as are also the middle femora, except at the base, and the middle tibiæ. Wings flavo-hyaline, the apex faintly smoky; the nervures, except at the apex, and the stigma fulvous; in front of the stigma the costa is black, and behind this black part is a blackish cloud which extends to the cubital nervure, the apex of the cloud being roundly incised at the bottom. Abdomen deep black; the ventral surface pale

lemon-yellow; the base of the petiole broadly and deeply depressed; the middle of the apical part broadly raised; the base irregularly reticulated with two longitudinal keels in the middle; the apical part has a central and lateral keels, which enclose two wide and deep central, and one narrower and less deep lateral, depressions. The second segment is irregularly, strongly and sharply striated; the central keel extends to the apex, its base very smooth and triangular; on either side of this is a stronger keel, which does not quite reach to the apex, which, at the sides, is much more closely and finely punctured. The depression at the base of the third segment is stoutly striated; the middle of the segment to near the apex strongly longitudinally striolated; the oblique furrows marked with rather widely separated, and not very distinct keels; on the side of the triangular basal space enclosed by them is an indistinct longitudinal furrow.

BRACON UMBRATILUS, *sp. nov.*

*Niger; prothorace, mesonotoque cum scutello rufis; alis fuliginosis, stigmate fusco.* ♀.

Long. 8; terebra 5 mm.

Antennæ and head entirely black; the front and vertex smooth and shining; the frontal furrow wide and deep; the face and oral region closely and uniformly punctured, and thickly covered with long, white hair; the palpi black, thickly covered with white hair. Prothorax red; black at the base; the propleuræ closely punctured; the base finely striated. Mesonotum smooth, thickly covered with short, white hair; the scutellum finely punctured. The postscutellum and median segment black, the latter minutely punctured, at the apex thickly covered with long, white hair. The base of the mesopleurae rufous to near the bottom; the oblique furrow is wide and deep. Mesoster-

num closely and minutely punctured; furrowed down the middle. Petiole rugosely punctured; the sides widely depressed, with a few transverse furrows near the apex. The second to the fifth segments are closely rugose; the triangular base of the central keel is longitudinally rugose; the space on either side of it strongly, irregularly reticulated; the sides at the base are depressed, the central portion being sharply raised at the sides. The middle ventral segments are pallid yellow; the hypopygium sharply cultriform. Legs stout, thickly covered with white hair; the tarsal spines fulvous.

BRACON DODONAEUS, *sp. nov.*

*Luteus; flagello antennarum terebraque nigris; abdominis medio striolato; alis flavo-hyalinis; macula substigmatali fusca.* ♀.

Long. 15; terebra 7 mm.

Scape of antennæ luteous; the sides and beneath black; the flagellum entirely black; indistinctly covered with a microscopic down. Head shining; the face thickly covered with long, fulvous hair; the front with shorter and darker hair; the vertex with the hair longer and paler. Ocellar region indistinctly raised; a straight, not very distinct, furrow at their side; immediately above the antennæ there is a transverse, shallow depression with a flat keel down its middle, the keel becoming wider towards the apex. Mandibles broadly black at the apex. Thorax shining, the base of the median segment obscurely punctured; the pro- and meso-notum almost glabrous; the median segment rather thickly covered with long, fuscous hair; the pleuræ almost glabrous above, the lower part sparsely covered with short, white hair, the middle lobe of the mesonotum is indistinctly raised, not very clearly defined; the scutellum at the apex distinctly

separated from the postscutellum; the latter still more distinctly and widely separated from the median segment, which has a gradually rounded slope. Legs uniformly coloured, the tibiae and tarsi thickly covered with pale, fulvous hair. Wings distinctly yellowish, the yellow becoming paler beyond the stigma; the apex infuscated, but not deeply; the nervures and stigma luteous; the costa in front of the stigma fuscous, and from this a dark fuscous cloud runs along both sides of the cubital nervure to the end of the first cubital cellule; the cloud on the inner side being broader and, at the middle, less distinct, and interrupted. The sides of the petiole oblique, smooth; on the inner side, next to the central raised part, crenulated; the transverse keels becoming more widely separated towards the apex; the base of the raised part smooth, the middle strongly longitudinally striolated; the central keel being more prominent than the others. The second segment is strongly longitudinally striolated; near the edge is a not very clearly defined, longitudinal furrow. The securiform articulation is longitudinally striated; the striae smaller and closer together in the centre; the part behind it is longitudinally striated at the base, but not very stoutly; the lateral depression at the base stoutly obliquely striolated; the apex is closely and finely longitudinally striated; on the outer side of the depression the striations are fewer; the depression between the third and fourth segments is closely striolated; the three basal ventral segments entirely, and the fourth and fifth in the centre are pale lemon-yellow. Above, the fourth and fifth segments are blackish.

BRACON SEDITIOSUS, *sp. nov.*

Long. 12; terebra 12 mm.

Agrees in coloration with *B. simlaensis*, except that

the cloud in front of the stigma extends to the edge of the wings on the other side; easily known from it otherwise by the basal part of the second segment being strongly longitudinally striated; and from *B. dodonaeus* by its smooth, not striated, petiole and much longer ovipositor; and *B. lepcha* may be known from it by its perfectly smooth abdomen.

Antennæ black, slightly longer than the body; tapering towards the apex, covered with a pale, microscopic pile. Head rufo-luteous; the vertex covered with long, fuscous hair; the front smooth, shining, and bare; furrowed down the middle, the furrow wide at the base, narrowed towards the apex. The tips of the mandibles black; the palpi pale yellow, covered with long, white hair; the face obscurely punctured, thickly covered with long, fuscous hair. Thorax smooth, shining, thickly covered above with long, fuscous hair; the basal area of the mesonotum raised at the base; the oblique furrow on the mesopleuræ wide and shallow. Legs coloured like the thorax; the femora sparsely covered with long, pale, the tibiae and tarsi with fulvous, hair. Wings yellowish-hyaline; the apex with a smoky cloud; at the base of the stigma is an oblique, deep black cloud, which extends from the costa to the recurrent nervure, it having near the apex a round, paler space; and it is continued to the apex of the wing as a narrow cloud, originating from its base. The hinder wings have also a smoky cloud at the apex. The petiole is rough; down its middle is a sharp keel, and at its sides a few smaller irregular striations, which form irregular elongated reticulations. The lateral depressions on the second segment large, somewhat triangular and deep; the segment is stoutly striated, except at the apex, where it is smooth; at the base are three smooth spaces; the central is the largest, and is narrowed at the top; the

securiform depression striated, curved at the sides; the other furrows smooth; the hypopygium cultriform; the apex sharp, elongate.

BRACON JEJUNUS, *sp. nov.*

Long. 12; terebra 5 mm.

Comes near to *B. seditus*, but may be known from it by its much shorter ovipositor; by the much more roughly striated second abdominal segment; by the third segment being punctured; by the centre of the petiole being much more strongly punctured and the lateral depressions deeper.

Antennæ black. Head luteous; the vertex obscurely punctured; the front smooth; its furrows not much widened at the base; the face rugose; the tips of the mandibles black; the palpi covered with white hair. Thorax smooth and shining. The raised central part of the petiole strongly irregularly longitudinally striolated; the lateral depressions smooth; at their base, before the basal central depression, are four oblique keels. The second segment is coarsely longitudinally striated; the triangular basal area is covered with large, irregular foveæ; the sides at the base are depressed, the depression with curved keels; the securiform depression is wide, deep and striolated; the other depressions are also deep and less strongly striated; the apical depressions are narrow, distinct and obscurely striated. The femora are sparsely covered with pale, longish, the tibiæ, and tarsi thickly with shorter, fulvous hair; the apices of the tarsi black. The apical third of the stigma is black; at its base is a black cloud which extends slightly beyond the cubital nervure; on the lower side of the first cubital cellule is a faint hyaline cloud, which extends into the discoidal cellule.

BRACON DECLARATUS, sp. nov.<sup>1</sup>

Long. 10; terebra 3 mm.

Comes near to *B. jejunus*, but is smaller, has the ovipositor shorter, the metapleuræ, the hinder coxæ, trochanters, and femora, fuscous; the middle of the petiole smooth, not striated; the depression on the base of the second segment deeper, especially at the apex; the second cubital cellule longer compared with the third, and the cloud is larger, and not narrowed at the cubital nervure, only narrowed beyond it, near the margin of the wing.

Antennæ deep black, the scape sparsely covered with long, black hair. Head smooth and shining; the face thickly covered with long, white, the vertex more sparsely with fuscous, hair; the face is coarsely punctured; the clypeus is raised, its sides rounded, narrowed towards the top, which is depressed in the middle; the mandibular teeth are black; the palpi pallid yellow. Thorax very smooth and shining, the pleuræ covered with long, white hair. Legs rufo-testaceous; the hinder coxæ, trochanters, and femora blackish, as are also the tips of the tarsi; the tibiæ and tarsi are thickly covered with fulvous hair. Wings yellowish-hyaline, the apex infuscated; the cloud behind the stigma extends slightly beyond the recurrent nervure, and is continued along the median discoidal nervure to the end of the wing; the second cubital cellule is shorter than the third. Petiole, including the raised centre, smooth and impunctate; the second segment strongly irregularly striolated; the lateral depression wide and shallow, deepest at the apex; the basal area strongly and deeply punctured, the central keels raised, except at the apex of the segment. The securiform articulation wide and deep, stoutly longitudinally striolated, more closely and finely at the sides; the apical segments are smooth and shining, without any punctures.

CHAOILTA, *gen. nov.*

Head large, nearly as long as broad; largely developed behind the eyes; the front not depressed; immediately beneath and between the antennæ is a large obliquely projecting, somewhat semicircular, plate with raised margins; between the antennæ, and extending half way into the middle of the projection, where it is obliquely narrowed, is a large flattened plate. Prothorax above bilobate, the basal lobe the larger, and roundly and deeply incised in the middle. Petiole broad; the sides depressed; the second segment is triangularly keeled down the middle at the base; on the sides of the second and third segments at the base are oblique depressions; the securiform articulation is very deep in the middle, where it is longitudinally striated. The prosternum is widely and deeply furrowed, the furrow triangularly widened at the apex; the mesosternum is more narrowly furrowed. The second cubital cellule is large, as long as the third, and twice the length of the first; the recurrent nervure is received shortly in front of the first transverse cubital; the probrachial nervure is interstitial. The antennæ originate from stout tubercles; the scape stout, dilated before the apex into a tooth; the third joint is slightly larger than the fourth. Mandibles thick, with one blunt tooth at the apex. Eyes small, oval, placed on the top of the head and widely separated from the base of the mandibles. Legs short and thick; the hinder coxæ large, broad; the hinder femora not much more than one half of the length of the tibiæ.

The oblique depressions on the abdomen would refer this species to Foerster's genus *Ipianulax*. The head is much larger and more cubital than usual. The plate and keel on the front are very noteworthy, although we find a spine there in some neotropical species, e.g., in *Ipianulax nigriceps* Brullé.

✓ CHAOILTA LAMMELLATA, sp. nov.

*Capite, thorace pedibusque anterioribus luteis; antennis, abdomine pedibusque posticis nigris; alis flavo-hyalinis, apice fumatis.* ♀.

Long. 17; terebra 23 mm.

Scape of the antennæ rufous, black in the middle above; the flagellum black; its base and the scape sparsely covered with long, black hairs. Head smooth and shining, the face sparsely covered with long, fulvous hair. Mandibles yellowish; deep black at the apices; their base sparsely covered with long, fulvous hair; the palpi luteous, covered with long, fuscous hair; the second joint dilated. Thorax above very smooth, shining, and glabrous; as are also the pro- and meso-pleuræ; the metapleuræ thickly covered with long, fuscous hair; the propleuræ have a wide and shallow oblique depression shortly below the middle; over the sternum is a narrower and deeper furrow; before the middle of the mesopleuræ is an oblique furrow, narrower and deeper under the wings, wider and shallower lower down. The prosternum deeply furrowed in the middle, the furrow at the apex becoming widely and roundly dilated and showing a yellow triangular space between; the furrow on the mesosternum largely triangularly dilated towards the apex. The four front legs are of a paler yellow than the thorax; the middle coxæ in the centre behind, and the greater part of the basal joint of the intermediate trochanters, black; the hinder legs are entirely black. Wings: the stigma black at the base and apex; the nervures luteous; the second cubital cellule is longer than the third and twice the length of the first. Abdomen deep black; the edges of the petiole and the ventral surface whitish; the first to the fourth dorsal segments strongly longitudinally striolated; the depressed sides of the petiole much more finely and

closely striated; the apical segment smooth. In the centre of the base of the second segment is a raised keel, which becomes gradually narrowed to a sharp point, finely and closely punctured at the base; the rest much more strongly and irregularly; the lateral depression on the second segment, wide, oblique, shallow; on the third it is shallower; on the fourth shorter, curved, not so oblique.

✓ *SPINARIA ALBIVENTRIS, sp. nov.*

*Rufo-fulva; metathorace pedibusque posticis nigris; abdomine albo, supra late nigro-maculato; alis fulvo-fumatis.* ♀.

Long. 12 mm.

Head small, shining, uniformly rufo-fulvous; smooth, the vertex with a few fuscous hairs; the face above with long fuscous, below with some longer fulvous, hairs; the face projecting in the middle, with an elongated fovea above; the palpi are paler; the base of the mandibles closely punctured; the teeth black. Thorax smooth and shining. In the centre of the pronotum above is a large curved spine, sharply pointed at the apex, which reaches to the top of the occiput; in front of this tooth the pronotum is expanded; the expansion widest near the head; the sides slightly curved, distinctly margined; the point curved inwardly towards the middle; above it is keeled down the middle, depressed on either side of this central keel. The middle lobe of the mesonotum is largely raised and separated from the lateral by wide and deep furrows; at its apex in the centre is a stout Y-shaped keel. The scutellar keels stout; and there is, between, in the middle, a longitudinal one of the same thickness; on the scutellum behind is a central and four lateral stout keels; the post-scutellum raised, smooth, triangular; in front of it are two stout, irregular projections; at the sides of these

are some stout, longitudinal keels. In the middle of the median segment is a stout keel running from the base (where it is rounded) to shortly beyond the middle of the segment, outside this is a similar keel which surrounds its apical two-thirds ; outside this again is another originating at the same place, but proceeding to the end of the segment, where they are joined by a transverse keel ; between the two are a few irregular transverse keels, and, at the apex in the middle, is a longitudinal one ; from the outer side at the base a stout keel runs obliquely to the middle, and having on its inner side near the apex three short, stout keels ; on the side, shortly beyond the middle, is a large, stout tooth ; from its sides run obliquely two keels to the oblique inner keel ; behind, two stout keels run to the apex of the segment ; inside of which are two shorter keels united to the apical transverse terminal keel. The propleuræ largely and acutely margined in front and below, projecting at the base into a large, triangular tooth ; at the base is an oblique keel, and, in the middle, three larger, stouter, curved keels, at the apex above are three short keels ; below these are five larger ones, the central being much longer than the others. The prosternum is bordered above by a stout keel. Mesopleuræ smooth ; below is a wide depression, extending from near the base to the apex, where it gets narrower and deeper ; at its base are some keels ; the apical depression is crenulated. Metapleuræ smooth ; the upper and lower part at the base widely furrowed ; the depression on the top surrounded by a stout keel ; the lower part is more deeply and widely depressed and more stoutly keeled beneath ; at the apex in the middle are four keels which become gradually longer. Legs thickly pilose ; the apical joint of the posterior trochanters rufous. The basal segment of the abdomen black above, broadly white down the sides and

more narrowly at the apex ; the second is similarly coloured, but with the white narrower ; the third and fourth have the sides white ; the apical is entirely white. All the segments are stoutly longitudinally striolated ; the third and fourth project at the apex into stout, sharp spines, and, in the middle above, into stouter triangular ones ; the apical segment ends in a long, sharp, slightly curved spine ; the sheath of the ovipositor is black and slightly curved. Wings fulvo-hyaline ; there is an oblique, black cloud at the base of the stigma ; the apex of both wings smoky ; the stigma, costa and the basal nervures luteous.

Only one species of *Spinaria* has been recorded from the Indian mainland ;—*S. spinator* Guérin, from Bengal. It differs from the species here described in the thorax being entirely rufous ; the abdomen pale red ; and the hinder tarsi only black. In its general coloration our species comes nearest to *S. dimidiata* from Ceram. The genus appears to be characteristic of the Indian and Malay Islands.

#### AGATHIS.

a. *Wings hyaline, smoky at the apex.*

~ / AGATHIS KHASIANA, *sp. nov.*

*Lutea ; antennis tarsisque posticis nigris ; alis hyalinis, apice fumatis ; macula substigmatili nigra.* ♀.

Long. 12 mm.

Antennæ entirely black, except for an obscure rufous mark on the upper side of the scape ; the flagellum covered with dense, black, stiff, microscopic pubescence ; the scape strongly punctured, covered with long white hair. Head : the occiput and vertex thickly covered with longish, fulvous hair ; the face with shorter, pale fuscous

hair; the hair on the clypeus longer and darker; the mandibular teeth black; the palpi thickly covered with long, pale hair; the face shagreened; the front before the ocelli broadly and deeply and semi-circularly depressed. Thorax shining, above covered thickly with short fuscous, the sides with pale fulvous, pubescence; the middle lobe of the mesonotum depressed and triangularly produced behind; the base raised, strongly punctured; its middle distinctly raised and almost impunctate. At the base of the scutellum is a broad, deep depression having a stout keel in the middle at the base; the post-scutellum depressed; its sides stoutly keeled. The base of the median segment is sharply depressed; oblique, stoutly keeled in the middle, this keel, at the top, dilating into a somewhat heart-shaped area, the broad end being at the apex; and from it two stout keels run to the apex of the segment where they converge, but do not unite; the sides outside the spiracles are stoutly keeled; the outer keel being joined at its apex by a curved one of similar size which proceeds from the basal keel on the inner side of the spiracles, these being thus enclosed; at the apex of this, and united to it, is a stout L-shaped keel, from which two stout keels run to the apex of the segment. The pro- and meso-pleuræ are smooth, impunctate; the apex of the propleuræ crenulated on the lower half; the lower part of the mesopleuræ is broadly depressed; the depression having stout semi-oblique keels, which are stouter and more widely separated posteriorly. Legs thickly covered with short, fulvous hair; the four anterior have a lighter, more yellowish tint than the posterior; the apex of the hinder tibiæ, the hinder tarsi, and all the claws, black. Wings yellowish, the apex slightly infuscated; in front of the stigma is a black cloud, longer than broad, and with the sides and apex irregular; the part of the costa from

which it originates being also black ; above the middle the recurrent nervure is interrupted by a narrow hyaline cloud, curved at the top and reaching near to the middle of the areolet ; below this cloud is a shorter and broader curved one which joins the lower part of the discoidal nervure. Abdomen shining, the base and sides thickly covered with fuscous to fulvous hair. The sheaths of the ovipositor are black, pale at the apex, and pilose.

AGATHIS FORTICARINATA, sp. nov.

Long. 8 mm.

Is very similar to *A. khasiana* but is much smaller ; the apex of the wing more deeply and widely infuscated ; the areolet wider at the top ; the mesopleuræ closely and distinctly punctured all over, and with the furrow placed higher up ; the basal central area of the median segment not heart-shaped, but longer than broad and sharply triangular at the top.

Scape of the antennæ rufous, with a broad black line on the side, the flagellum black. Head entirely luteous, shining ; the face obscurely, the clypeus more distinctly, punctured ; closely covered with short, fuscous hair ; between the antennæ deeply depressed, the sides of the depression largely and sharply elevated ; the front broadly, but not deeply, depressed. Mesonotum strongly and closely punctured, especially the middle lobe, which is depressed in the centre, the middle of the depression being raised. Scutellum closely punctured ; its apex carinate ; its base with a wide and deep depression ; the postscutellum with the sides and middle acutely carinate ; the middle keel not reaching to the base. The basal central area of the median segment is longer than broad, its base sharply triangular, its apex transverse ; the lateral basal keels wider than long ; their base on the inner side curved ;

the spiracular area large, irregular ; its apical keel oblique ; the apex of the segment has, on either side at the top, two short, longitudinal keels ; its sides are stoutly keeled. The propleurae shining, impunctate ; the apex obscurely crenulated. The mesopleuræ closely and minutely punctured ; the base near the middle with a short, longitudinal furrow from which runs downwards obliquely a broad, indistinctly crenulated one, and, slightly upwards, a narrower, shorter, smooth one to the wide, crenulated, apical furrow. Metapleuræ closely punctured ; the base with a wide and deep depression, in the centre of which are three stout longitudinal keels. Wings fulvo-hyaline ; the apex, from the base of the stigma, and a mark, slightly longer than broad, at the base of the stigma and reaching near to, but not touching, the cubital nervure, deep, fuliginous black ; the two transverse cubital nervures do not touch at the top ; the first transverse cubital nervure is oblique, straight ; the second curved ; beneath the cubital nervure is narrowed at the stigma by the hyaline cloud and, in front of the areolet, it is interrupted by it ; the recurrent nervure is also interrupted by a bulla at its junction with the cubital, and below the angle above its middle. Legs fulvous ; covered with a pale, microscopic pubescence ; the hinder coxæ closely punctured ; the apex of the hinder tibiæ, and the hinder tarsi, black. Abdomen shining ; the apical segments thickly covered with pale fulvous hair ; the sheaths of the ovipositor black.

✓ AGATHIS NIGRITARSIS, sp. nov.

*Lutea; flagello antennarum, tarsis posticis apiceque tibiarum posticarum nigris; alis flavo-hyalinis, apice maculaque substigmatali fuscis, stigmate flavo.* ♂.

Long. 9 mm.

Antennæ longer than the body, black ; the scape

rufous. Head shining; the face finely punctured, thickly covered with short, fuscous hair; the front in the centre glabrous and very shining; the two lamellæ between the antennæ are stout and widely separated; the palpi thickly covered with white hair; the mandibular teeth black. Thorax unicolorous; the mesonotum has the middle lobe distinctly raised; and with two wide depressions down the middle and closely punctured; the lateral lobes are closely, but not strongly, punctured. Scutellum closely and coarsely punctured; the transverse keel at its apex stout; the depression behind it is wide and deep and has two longitudinal keels on either side of the middle; in the middle behind is a distinct semicircular keel. The base of the median segment is oblique and has a stout keel down the middle, its apex being bordered by a stout keel; the slope of the segment at the top is bordered by a stout keel; between this and the basal transverse keel are two straight keels having on either side a larger, oblique one; the spiracular area is bounded by two keels forming a triangle, which is united to the keel bounding the top by two small oblique keels. Propleuræ smooth; the mesopleuræ obscurely punctured; the furrow is oblique, wide, deep and traversed by eight stout keels. Metapleuræ closely, but not strongly, punctured. The lower part is bounded by a stout keel; and there is a short, oblique one over the coxæ. Legs uniformly coloured, except the apex of the hinder tibiæ and the tarsi, which are black. Wings yellowish-hyaline; there is a black, squarish mark at the base of the stigma; the apex is smoky; the first transverse cubital nervure is oblique; the second has the upper half oblique, the lower straight. Abdomen smooth and shining.

Comes near to *A. forticarinata*, which may be known from it by the different arrangement of the metanotal

areae; in *forticarinata* the basal central one is triangular at the base, the apex transverse; in the present species it is shorter, broader and rounded at the base, while there is, at its apex, an intermediate area which is absent in *forticarinata*, the latter too having the pleuræ more strongly punctured.

✓ AGATHIS PERONATA, *sp. nov.*

Long. 9-10 mm. ♂.

Resembles closely *A. forticarinata*, from which it differs by the two clouds in the wings being fainter, by the hinder tibiæ being almost entirely black, by the median segment being stoutly transversely striated, and by the central basal area being transverse, not triangular, at the base; by the furrows on the mesopleuræ being wider, deeper, and more strongly crenulated; by the three keels on the metapleural depression being more widely separated, especially in the upper two, which are more widely separated than are the middle and lower, while in *A. forticarinata* the three are separated by almost the same distance.

Antennæ longer than the body, black; the scape rufous beneath, thickly covered with longish, pale hairs; the flagellum thickly with short, stiff, black hair. Face shining, indistinctly punctured; thickly covered with short, black hair; the clypeus more strongly and distinctly punctured than the face, and clothed like it; the palpi covered with long, pale hair; the vertex and occiput thickly covered with longish, fuscous hair; the front shining, bare, not greatly depressed. Middle lobe of the mesonotum greatly raised above the lateral; strongly punctured, depressed in the middle; the depression raised in the middle; the raised part being more closely punctured, and with the punctures smaller than they are on the sides. Scutellum strongly punctured; a stout, curved keel on its apex; the depression at its base

very large and deep, and with a keel in the middle at the apex; the lateral keels large, acute. Postscutellum depressed; its sides carinate; at the apex of the mesonotum is a stout bordering keel which projects into the centre of the postscutellum sharply; and, from the centre of the projection, a stout, straight keel runs down to the base of the median segment, which is obliquely raised and keeled in the middle. The median segment is stoutly transversely striolated, most strongly at the base; the top of the depression is keeled; the central area is longer, by about one-half, than its breadth; its base is angled, but not acutely; the apex is transverse; the lateral areas are of the same length; they are wider and open at the apex on the inner side; the bounding apical nervure being interrupted on one side in all three areas; the apex of the segment is rough, irregularly reticulated. Propleuræ smooth; its apex obscurely crenulated; the mesopleuræ punctured all over; the oblique furrow wide and deep, bearing stout, widely-separated keels; the longitudinal furrow wide; the metapleuræ more closely and strongly punctured than the meso-; the basal furrow wider and deeper than that on the apex of the mesopleuræ; the three keels in it stout; the upper separated from the central by a greater distance than that is from the lower; the lower part from the base is irregularly keeled, and from the centre of this keel a stouter, straight one runs to the apex, forming a triangular area. Legs, especially the coxae and femora, closely punctured; thickly covered with short hair, which is somewhat fulvous in tint on the front legs; the hinder tarsi and the hinder tibiæ, except for a rufous band near the base, black. Wings yellowish hyaline; the apex slightly infuscated; the spot behind the stigma is longer than its breadth and brownish; the lower part of the stigma is pale yellow; the areolet is rounded at the top, the nervures

uniting there; the lower nervure is faint; at the top the recurrent nervure is separated from the cubital by a bulla; there is another bulla shortly above the middle of the nervure; so that, with these two bullæ, a small piece of the nervure is completely separated from the rest. Abdomen shining, impunctate.

✓ AGATHIS MELANOCERUS, *sp. nov.*

*Lutea; vertice antennisque nigris; alis flavis, apice fere fumatis.* ♀.

Long. 11 mm.

Antennæ entirely black, except for a rufous mark on the base of the scape; which is covered with blackish hair. Head luteous, the upper part in front and behind black. Face impunctate, thickly covered with fuscous hair; below the antennæ is a triangular depression; the mandibular teeth black and piceous. Mesonotum of a brighter, less pallid, yellow hue than the rest of the thorax; its central lobe roundly raised, not depressed in the middle; the depression at the base of the scutellum wide and deep; its middle keel reaching near to the base. The base of the scutellum has a straight, oblique slope and is keeled at the top, is almost impunctate and glabrous, and has at the apex a stout, slightly curved keel. The base of the median segment has a semi-oblique slope, is stoutly keeled round the apex and down the middle; the central area is longer than its breadth, triangular at the base, transverse at the apex, and has a stout, transverse keel shortly beyond the middle; the lateral areae next to it are slightly wider than it is at the top, but distinctly narrower at the bottom; the keel bounding the spiracular area at the apex is curved, slightly oblique. Pleuræ shining; the meta- obscurely punctured; the oblique furrow on the meso-wide and deep and having stout, widely separated keels;

the furrow on the base of the meta- deeper in the middle, but hardly so wide as that on the meso-, and has in the middle four equidistant keels. Legs stout, coloured like the body, except for the hinder tarsi which are black; thickly covered with white to fulvous hair; the hinder calcaria blackish towards the apex. Wings yellowish, the apex slightly fuscous; the areolet obliquely triangular; the first transverse cubital nervure is oblique; the second is roundly curved. Abdomen very shining, impunctate, the apex darker coloured than the base.

*b. Wings entirely fuscous; the transverse cubital nervures not uniting at the top.*

✓AGATHIS NIGRITARSIS, *sp. nov.*

*Lutea; antennis, apice tibiarum posticarum tarsisque posticis nigris; alis fuscis. ♂.*

Long. fere 8 mm.

Scape of antennæ black, thickly covered with black hair; the flagellum wanting. Head uniformly luteous, the front and vertex shining, obscurely punctured, thickly covered with fuscous hair. Clypeus impunctate, pallid yellow; the tips of mandibles black, the palpi thickly covered with long, pale hair; from the hinder ocelli a stout, not very clearly defined, keel runs obliquely to the eyes; between the antennæ the front rises in two triangular projections. Thorax shining; the pleuræ impunctate; the mesonotum with a few indistinct punctures; its middle lobe not largely elevated; its base oblique; its centre at the base slightly raised; the scutellum slightly raised, impunctate; the depression at its base wide and deep; at its apex is a transverse keel. The base of the median segment broadly and deeply depressed; in the middle of the depression are two stout keels, slightly curved, uniting

into one oblique keel at the apex ; there are four distinct areae ; the central basal one triangular at the base ; the apical central is nearly square, with an indistinct keel in its middle ; the basal lateral one is twice as broad as its length ; the apical nearly square ; the apex of the segment is sharply oblique ; in its centre is a large area which reaches near to the apex of the segment ; it is longer than its width and rounded at its apex. Pro- and meso-pleuræ shining, impunctate ; the metapleuræ obscurely punctured; thickly covered with long, white hair ; at the base, on the lower side, are two large keels forming nearly a triangle. Legs coloured like the thorax, thickly covered with white hair ; the apex of the hinder tibiae and the hinder tarsi deep black. Wings deep fuliginous, shining ; the base of stigma broadly pallid luteous ; the base of the first cubital cellule and a curved elongated line reaching from shortly beyond the top of the recurrent nervure to the middle of the second cubital cellule and with an oblique broader branch issuing from it on the outer side of the recurrent nervure, hyaline. The cubital nervure is interrupted by a bulla on either side of the transverse cubital nervure. Abdomen shining ; the ventral surface at the base pallid yellow ; the apex with a few longish hairs.



AGATHIS FULIGINOSA, sp. nov.

*Nigra ; alis fuliginosis, nervis stigmatisque fuscis.* ♀.  
Long. 8 mm.

Antennæ black ; the scape shining, sparsely punctured and sparsely covered with short, black hair ; the flagellum opaque, thickly covered with a close, microscopic down. Head shining, impunctate ; the face thickly covered with short, black hair ; the clypeus sparsely with longer, paler hair ; front depressed, very smooth and shining ; from the upper side of the front ocellus runs a thick, curved keel,

the two uniting into one above the antennæ and forming a large, somewhat heart-shaped, area ; a stouter, broader, blunter keel runs from between the middle of the ocelli obliquely to the eyes ; the front broadly projects between the antennæ; and from between them a broad furrow, about three times as long as broad, runs down the face, Thorax black ; the pro- and meso-thorax shining, impunctate. The depression at the base of the scutellum is wide and deep ; in its centre is a stout longitudinal keel, bordered on either side lower down by a thinner one ; the post-scutellum is placed much lower down than the scutellum ; is hollow, wider than its length and ends in the middle at the apex in a stout keel. The depression at the base of the median segment is wide and deep ; the segment, except at the base, is thickly covered with longish, dark hair ; in the middle is one continuous area, narrow at the base, becoming gradually wider to the apex, which is rounded ; in it, before the middle, are two transverse, not very stout or distinct, keels ; the upper lateral area is a little wider than long, almost square ; in its outer side is a depression which extends from top to bottom, becoming gradually narrower as it does so. Propleuræ deeply excavated, especially in the centre beneath, which bears in the middle of the hollow, some stout, transverse keels ; the mesopleuræ at the base beneath has a deep depression, wide at the bottom, narrow at the top ; where it curves round to near the middle ; in the narrow top part are three stout, transverse keels ; the upper two of which are nearer to each than the lower pair are to each other ; in the curved lower part are two distinct septa, forming two large distinct foveæ ; the lower being the larger and deeper. The metapleuræ are broadly raised in the middle, the raised part very rough ; irregularly reticulated ; its apical part deeply depressed, the depression divided in the middle by

a keel. Legs, especially the tibiæ and tarsi, very thickly covered with stiff, black hairs. Wings uniformly coloured, except for a small hyaline spot at the base of the cubital, and a more elongated one touching the lower part of the discoidal nervure in front; the transverse median nervure is received immediately in front of the basal nervure, almost touching it. Abdomen smooth, shining; the petiole depressed at the base, the middle indistinctly triangularly raised.

#### MICRODES.

The two species here described agree better with this genus rather than with *Earinus*, with which they agree in some other respects. They agree also with *Disophrys* in the second transverse cubital nervure emitting a short branch, and one of the species (*tuberculatus*) approximates to it by having a horn between the antennæ. Apart from the marked distinction in coloration our two species may be separated as follows:—

A stout tubercle between the antennæ, the mesopleural suture smooth. *M. tuberculatus.*

No tubercle between the antennæ, the mesopleural furrow bearing oblique keels. *M. fumipennis.*

#### MICRODES TUBERCULATUS, *sp. nov.*

*Ferrugineus, flagello antennarum abdominisque apice nigris; alis flavo-hyalinis, macula substigmatali nigra, apice fumato.*

Long. 10; terebra 6 mm.

Antennæ as long as the body, black, the scape rufous. Head shining, impunctate; the face sparsely covered with short, soft, white hair; the palpi are thickly covered with long, white hair; between the antennæ is a stout plate, which becomes gradually smaller behind and is rounded in front. Thorax shining, impunctate, almost glabrous;

the postscutellum is hollowed and bordered by a semi-circular keel. The median segment has at the base a transverse keel, from the centre of which runs a longitudinal one to near the middle of the segment ; outside this a stout keel runs from near the base to the apex ; on the apical half at the sides is a stout longitudinal keel. Pleuræ shining, impunctate; on the lower part of the meso- is a longitudinal furrow. The base of the mesosternum is oblique and is keeled at the sides and below ; on the apex in the middle is a large, triangular depression. Legs coloured like the thorax ; the front pair paler ; the tibiæ and tarsi thickly covered with fulvous hair. The apical cloud in the fore wings extends from the second cubital cellule to the apex ; at the base of the stigma and extending on to the costa is a deep black cloud, which is longer than its breadth ; the branch on the second transverse cubital nervure issues from above the middle and is twice as long as the transverse cubital nervure, but becomes fainter towards the apex. The basal segment of the abdomen is depressed deeply at the base and apex ; the sides sharply keeled ; the apical depression, the apex of the petiole and the second and third segments are strongly longitudinally striated ; the others are smooth ; the apex of the petiole and the basal half of the second segment, the apex of the third in the middle and the apical segments are black, smooth and shining.

✓ *MICRODES FUMIPENNIS, sp. nov.*

*Niger; prothorace, mesonoto, mesopleuris supra pedibusque anterioribus rufis; alis fumatis, stigmate nigro.* ♀.

Long. 8 mm.

Antennæ as long as the body ; black, thickly covered with short, black hair. Head black ; the part between the lower part of the eyes and the base of the mandibles

white ; the mandibles obscure testaceous ; the palpi black ; the face shining, covered with short, black hair ; the labrum obscure testaceous ; the front and vertex shining, impunctate ; the front somewhat triangularly raised below the ocelli ; the raised part being depressed in the middle. The prothorax uniformly rufous ; below thickly covered with long, white hair ; its top in the centre is raised ; below it is a stout, oblique keel. Mesonotum shining, the sides obscurely shagreened ; the middle lobe clearly separated ; the scutellum thickly covered with short, white hair. Median segment black, thickly covered with white hair ; the central area is narrowed at the base and apex ; there is a stout, transverse keel near the base, and another shortly beyond the middle. The upper part of the mesopleuræ largely rufous ; the black lower part is depressed obliquely, the top bearing a row of striations. The metapleuræ entirely black ; the oblique furrow at the base is wide and deep ; the lower half is coarsely reticulated. The wings are uniformly coloured, except for some hyaline clouds at the base of the stigma in the cubital and discoidal cellules. There are two distinct bullæ in the recurrent nervure near the top, the part between them being elbowed ; the second transverse cubital nervure is bullated below the middle ; the branch emitted by it is as long as the nervure itself. Abdomen deep black ; the basal ventral segments pale testaceous ; the petiole is longer than the second segment ; its basal two-thirds are bordered laterally by two sharp keels, which approach each other near the base, becoming wider apart towards the apex, the space between being hollowed ; its apex has two stout central, and two or three shorter and more irregular longitudinal keels. The second and third segments are stoutly longitudinally striolated, the latter to near the apex, which is strongly

aciculated, and bear a transverse furrow in the striated part. The other segments are obscurely aciculated and sparsely covered with long, black hair.

✓ *DISOPHRYS RUFICOLLIS, sp. nov.*

*Niger; capite, prothorace, mesonoto pedibusque anterioribus ferrugineis; alis flavo-hyalinis, apice maculaque stigmatali fuscis; nervis stigmateque flavis.*

Long. to end of petiole, 7 mm.

Head rufous ; the middle of the front and vertex broadly, and the upper part of the occiput black, smooth, shining, the face and clypeus thickly covered with long, fuscous to fulvous hair. Thorax shining, smooth ; the prothorax, the mesonotum with the scutellum and the upper part of the mesopleuræ rufous. The depression at the base of the scutellum is large and deep, and has two keels in the middle ; on the top of the scutellum, near the apex, is a transverse keel ; the postscutellum is depressed, black, and surrounded by a black keel, and from it runs a lighter coloured, curved one. The base of the median segment is depressed and has in the middle a stout, rounded keel, from which two stout keels run to the apex ; the base of the area enclosed by them is triangular and is separated by a transverse keel ; the apical depression on the metapleuræ has seven stout keels ; the oblique furrow on the apex below the middle has some obscure keels at the base. The mesosternum is widely depressed in the middle at the apex and is furrowed down the middle. The tibiæ and tarsi are thickly covered with fulvous hair. The black mark at the base of the stigma extends into the middle of the discoidal cellule ; there is only a short stump on the second transverse cubital nervure.

This species agrees with *Disophrys* in having two

distinct lamellæ between the antennæ. The branch issuing from the second transverse cubital nervure is short; the abdominal segments are smooth without any striations as in *Microdes*; the furrow on the mesopleuræ is wide and deep, and obscurely marked with keels. My only example wants the apex of the abdomen.

## ICHNEUMONIDAE.

### OPHIONIDES.

#### OPHION.

This genus is divided into two sections, according to the neuration of the anterior wings.

**A.** *The basal abscissa of the cubitus not thickened; the cubital nervure with an abbreviated projection opposite the base of the stigma* = OPHION, *sensu Lat.*

The two species here described may be separated as follows:

(a) The recurrent nervure received opposite the end of the basal abscissa of the radius; the depression at the base of the median segment indistinct, triangular; the middle lobe of the mesonotum fuscous; the basal transverse keel on the median segment indistinct.

*O. fuscomaculatus.*

(b) The recurrent nervure received distinctly in front of the end of the basal abscissa of the radius; the depression at the base of the median segment large, deep, semicircular; the basal transverse keel distinct; the orbits and vertex broadly yellow.

*O. areolatus.*

#### OPHION FUSCOMACULATUS, *sp. nov.*

Long. 15 mm.

This species agrees with *O. univittatus* Lep. in having

the mesonotum marked with "une bande brune"; but the "metathorax is covered with fine curved striæ, without any other indication of the absence of the first division than the absence of the striae above"; here there are no transverse striae; there is a distinct transverse keel across the middle, from which two finer keels run down to the apex, enclosing a finely longitudinally striated space.

Face and clypeus ferruginous, inclining to yellow at the eyes; the outer orbits and occiput entirely pale yellow; the vertex darker; the mandibular teeth black; the face and clypeus roundly projecting in the middle and not separated. Antennæ ferruginous, darker towards the apex. Thorax pale fulvous-yellow; the mesonotum of a darker hue; its middle lobe for the greater part dark fuscous, not clearly defined from the lateral. Scutellum shining, smooth, pallid yellow; the sides not keeled above; postscutellum distinctly raised; its apex with an oblique slope; from its base a fine keel runs to the wings; below the keel there is a small striated band. The depression in the middle at the base is broader than its length, narrowed to a point in the middle at the apex and longitudinally striated in the middle; across the middle of the median segment is a stout, transverse keel behind which, in the centre, is a shallow depression; the apex of the segment oblique, the middle finely longitudinally striated. Pleuræ smooth and shining. Legs coloured like the thorax. Wings hyaline, the stigma rufo-fulvous; the nervures black; the apex of the cubital cellule is sharply triangular; the triangular part of equal length above and beneath through the recurrent nervure being received opposite the apex of the basal abscissa of the cubitus; the transverse median nervure is received immediately in front of the transverse basal. Abdomen ferruginous: the base of the petiole paler.

OPHION AREOLATUS, *sp. nov.*

Long. 15 mm.

The orbits broadly and the vertex pale lemon-yellow; the face and occiput ferruginous, suffused with yellow. The face and clypeus finely, but distinctly, punctured; the clypeus separated by a furrow from the face, and with a deep oblique furrow at the sides. Mandibles smooth, and yellow at the base; the middle punctured; the teeth black. Thorax with the sides and scutellum of a distinct yellow hue; the furrows bordering the middle lobe of the mesonotum at the base wide, deep, distinct. Scutellum smooth; the sides not carinate; the postscutellum distinctly carinate at the base; its apex with an oblique slope; its sides oblique, becoming wider towards the apex. The depression at the base of the median segment wide, deep, semicircular; in front of this is a transverse keel, from which run two stouter keels to the apex; from the middle of these runs a stout, curved keel to the middle of the base of the petiole; there being inside this an oblique keel; the whole forming, on the apex of the segment, a central and two lateral areæ. Pleuræ shining, impunctate; the depression below the tubercles wide and deep; from its apex runs, obliquely to the hinder coxæ, a distinct furrow, widest and deepest at the apical half. Wings clear hyaline; the stigma rufo-fulvous; the nervures black; the transverse median nervure is received on the inner side of the transverse basal; the second recurrent nervure is received distinctly in front of the apex of the basal abscissa of the radius; the apex of the cubital cellule being thus longer on the lower than on the upper side.

A distinct species. Easily known, *inter alia*, from *O. fuscomaculatus*, by the areolated apex of the median segment.

B. *The basal abscissa of the cubitus thickened, the cubital cellules with horny points* = *Enicospilus*.

**ENICOSPILUS RETICULATUS, sp. nov.**

*Fulvus; antennis flavis; mesonoto abdomineque late nigris; alis hyalinis, nervis stigmateque nigris.* ♀.

Long. 30 mm.

Antennæ longer than the body, uniformly coloured; the scape obscurely punctured; sparsely covered with pale hair; the flagellum thickly with a fuscous, microscopic pile. Head fulvous; the face with a faint yellowish tinge; the ocellar region deep black; the face distinctly punctured; the clypeus obscurely punctured; the apex smooth. Mandibles closely punctured at the base; the teeth deep black; the palpi fulvous, covered thickly with long, white hair. Thorax fulvous; on the mesonotum are three large black marks, and on the mesosternum two large black marks. The depression at the base of the scutellum large and deep; the keel bordering it covered with long, pale hair; the base of the scutellum is closely and finely punctured, closely longitudinally striated, and the whole thickly covered with long, white hair; at the apex there is a small part separated from the rest by a keel, and of a darker colour and closely longitudinally striated; the postscutellum indistinct, and bordered on either side by a stout, oblique keel. The base of the median segment is obliquely depressed at the base and apex; the centre at the base has a long central, bordered by a shorter keel and the edges by a curved one; the apical part smooth and without any keels. The smooth basal part of the median segment is bordered by a curved keel; in front of this the segment is stoutly irregularly reticulated; in the middle at the base are two straight narrow keels; the centre beyond these bordered by a much stouter keel; the

central bordered area has, at the top, two or three stout transverse keels; the apex is smooth. Pro- and mesopleuræ smooth; the apical furrow on the mesopleuræ crenulated; the apex on the lower side obscurely obliquely striated. Down the middle of the metapleuræ is a curved keel, the lower edge bordered by a much stouter and sharper one; the space between them bearing some stout, slightly oblique keels; the apical part above this has similar keels but stouter and more distinct. Legs uniformly coloured and thickly pilose. Wings hyaline; the bare space on the base of the cubital cellule with one large horny point, which is sharply dilated on the lower side at the base and apex; the third segment of the abdomen is black, except on the lower third; the three apical segments are entirely black; the fourth segment is of a paler colour than the basal.

ENICOSPILUS STRIATUS, *sp. nov.*

*Flavus; alis hyalinis, stigmate fulvo; metanoto striato.*  
Long. 16 mm.

This species may be known from *E. reticulatus* by being smaller, by the thorax and abdomen being devoid of black, by the scutellum not being distinctly narrowed towards the apex, not longitudinally striated, and more distinctly keeled laterally and by the transverse median nervure not being united to the transverse basal, but received distinctly behind it. The Ceylonese *E. ceylonicus* Cam. comes near to it, but may be known by the median segment being only coarsely shagreened, not striated, and by there being four horny spots in the fore wings, instead of one only as in the present species.

Face closely punctured, the depression below the antennæ in the middle ending in a shining, blackish tubercle; the tips of the mandibles broadly black. Meso-

notum slightly infuscated, closely punctured and covered with a short, white down. Scutellum distinctly and gradually narrowed towards the apex ; its sides carinate ; its base closely punctured ; the apex rough, obscurely punctured and transversely striated ; at the apex below there is a stout, curved keel, from the end of which on either side, a curved keel runs to a transverse one. The base of the segment deeply and widely depressed, the depression stoutly longitudinally keeled in the middle ; the apex in the middle broadly deeply triangularly depressed. This basal part is bordered by a stout transverse keel ; in front of this the segment is irregularly longitudinally striated ; the apical half stoutly striated, the striae curved, almost semi-circular. Propleuræ closely obliquely striated ; the mesopleuræ closely punctured ; the lower corner at the apex with a wide depression ; at the base on the lower half is a curved keel. Wings hyaline, the stigma fulvous, the nervures dark fuscous ; the single horny point oblique, longer than its breadth, the apex bluntly rounded ; the base sharply narrowed ; the transverse median nervure is received distinctly in front of the transverse basal. Legs lighter in colour than the body, the tibiæ and tarsi having a distinct yellowish tint.

#### SCHIZOLOMA FULVICORNE, sp. nov.

*Nigrum ; antennis fulvis ; abdomine rufo ; pedibus anterioribus flavis ; alis fulvo-hyalinis.* ♀.

Long. 33 mm.

Antennæ fulvous, more yellowish in tint towards the apex ; the scape lemon-yellow, densely covered with long, pale hair. Head black ; the face and clypeus, a line on the inner orbits, broad at bottom narrower at the apex and almost interrupted above the middle, and a

short line above the middle of the outer orbits, yellow. The head behind the eyes is strongly punctured ; the punctures all clearly punctured ; the vertex is more strongly punctured. The clypeus is of a paler yellow than the face, is black at the base, and is strongly punctured, especially at the sides ; the mandibles yellow, black at the apex. Thorax black ; densely covered with dark fulvous pubescence ; the pro- and meso-thorax closely and strongly punctured ; the propleuræ in the middle behind longitudinally striolated ; the mesopleuræ at the base above with curved striations, below with the striations oblique, between these irregularly reticulated ; the depression at the apex is crenulated. Scutellum thickly covered with long, fuscous hair ; the base is, if anything, more strongly punctured than the mesonotum ; the sides to the apex longitudinally striolated, running into irregular reticulations ; the apex in the middle is rough, irregularly obscurely reticulated. Median segment strongly reticulated ; at the base the areæ are longer than broad, in the middle broader than long ; in the middle at the apex the keels form a large area rounded and narrowed at the base, and having inside of it three stout, slightly curved keels. The metapleuræ at the base have at the top a wide and rather deep depression, the sides of which are oblique, the middle with some stout, transverse keels ; the rest of them strongly and irregularly reticulated. The four anterior legs are yellow, the femora more fulvous in tint ; the hinder coxæ are black, the apex reddish ; the middle beneath yellow, the hinder trochanters bright, the femora dark rufous ; the basal two-thirds of the hinder tibiæ of a still darker rufous ; the apex black ; the hinder tarsi yellowish fulvous, densely covered with fulvous—dark on the metatarsus, brighter on the apical joints—hair ; the second joint flat on the inner side, with the apex dilated.

Wings fulvo-hyaline ; the stigma rufo-fuscous ; the nervures darker. Abdomen ferruginous, the petiole and second segment black above.

The ♀ is similar in coloration, except that the hinder coxae wants the yellow and the hinder tarsal joints are not dilated.

### PANISCUS.

The species of this world-wide genus are difficult to separate owing to their extreme similarity in colour, structure, and sculpture. The species here described fall into two clearly-defined sections, the species forming the first having especially well marked characters.

**A.** *The transverse basal nervure completely interstitial; the areolet appendiculate at the top; the keel on the apical third of the median segment reaching near to the middle of the segment, which is not distinctly transversely striated.*

### PANISCUS INTERSTITIALIS, sp. nov.

*Flavo-rufus; capite flavo; mesonoto fuso; alis hyalinis nervis nigris, stigmate flavo.*

Long, 10 mm.

Head lemon-yellow ; the mandibles and palpi of a more reddish hue ; the mandibular teeth black ; the face closely, but not strongly, punctured ; the face and clypeus covered with short, white hair ; the clypeus at the apex covered with long, dark rufous hair ; the ocellar region blackish only between the hinder ocelli. Antennæ uniformly rufous ; very sparsely pilose. Mesonotum infuscated ; the middle lobe blackish ; the scutellum dark rufous above ; the sides pallid yellow ; the post-scutellum roundly oblique at the base and apex ; the median segment roundly depressed at the base ; the apex is raised in the middle ;

its sides slightly depressed and bordered behind by a stout, curved keel. Pleuræ smooth and shining, of a paler, more yellowish, tint than the mesonotum ; the furrow at the base of the metapleuræ is wide and deep ; the keels down the middle bordering the apex and the lower side stout, clearly defined throughout. Legs rufous; the coxæ, trochanters, and hinder tibiae pale lemon-yellow. Wings clear hyaline ; the costa and stigma yellowish ; the nervures black at the base, lighter, more fuscous, in tint towards the apex ; the areolet oblique, narrow, longish, shortly, but distinctly, appendiculated at the top ; the lower half of the second transverse cubital nervure is largely bullated at the apex ; the recurrent nervure is interstitial with it ; the part of the cubital nervure bordering it on the lower side has a sharp, oblique slope from the base to the apex ; the recurrent nervure is largely bullated at the top and, to a less extent, below the middle, the transverse median nervure is interstitial ; there is no "stump" on the cubital before the areolet. Abdomen slightly infuscated towards the apex.

B. *The transverse basal nervure not interstitial ; the areolet not appendiculate at the top ; the keel on the apical third of the median segment short ; the segment closely and strongly transversely striated.*

Body ferruginous, yellowish only round the eyes ; the median segment closely punctured, only obscurely striated near the apex in the middle ; antennæ fuscous.

*P. ferrugineus.*

Body yellowish or testaceous ; the median segment distinctly transversely striated ; antennæ rufous or testaceous.

*P. longitarsis.*

PANISCUS FERRUGINEUS, *sp. nov.*

*Ferrugineus, orbitis oculorum flavis ; flagello anten-*

*narum fuscō; alis hyalinis, stigmate flavo, nervis nigris.* ♀.

Long. 14 mm.

The scape and base of the flagellum rufous; the rest of the flagellum fuscous, almost black. Head ferruginous; the orbits of the eyes lemon-yellow; the ocellar region deep black. Face strongly and closely punctured; the base of the clypeus less strongly and closely punctured; the apex with the punctures still more widely separated; the apices of the mandibles black; the palpi rufous, sparsely covered with long, white hair. Thorax uniformly ferruginous, except the base and apex of the mesopleuræ which are yellow; and the sides of the scutellum and the postscutellum, which have a yellowish hue. Mesonotum closely, but not strongly, punctured; the parapsidal furrows not very deep. Scutellum closely punctured; the depression at its base deep; the lateral keels large, especially at the base; the sides of the post-scutellum keeled on the basal half; the depression on the base of the median segment longish, extending almost to the sides; slightly curved, narrowed laterally; the rest of the segment closely and rather strongly punctured, obscurely transversely striated in the middle towards the apex, where there is no keel. Pro- and meso-pleuræ closely and strongly punctured; the space on the mesopleuræ above the oblique furrow more shining, and with the punctures much more clearly and widely separated; the furrow on the metapleuræ narrow at the top, wider and deeper at the bottom. Legs ferruginous; the tibiæ and tarsi thickly covered with whitish pubescence; the spines rufous; the claws deep black. Abdomen infuscated towards the apex; the sheaths of the ovipositor black.

PANISCUS LONGITARSIS, *sp. nov.*

*Fulvus; facie apiceque metanoti flavis, vertice nigro;*

*alis hyalinis, stigmate flavo, nervis fuscis; metanoto striolato.* ♂.

Long. 22 mm.

Hab. Simla.

Antennæ ferruginous, darker at the apex. Face and clypeus lemon-yellow; the face roundly dilated in the middle; thickly covered with short, fuscous, the clypeus with much longer, blackish, hair; the hair much longer at the apex. Mandibles rufous at the base, covered with long, golden hairs; the teeth black; the palpi long, pallid yellow, sparsely covered with white hair. The ocellar region deep black; the front yellow, reddish in the middle; the semi-circular furrow in front deep; and there is a similar one above each of the antennæ. Thorax ferruginous, the sides more yellowish; the middle lobe of the mesonotum clearly defined; the part between its apex and the base of the scutellum flatly depressed in the middle. Scutellum closely and minutely punctured; the lateral keels stout; the apex depressed and with the bordering keels narrower. Postscutellum widely depressed at the base; its middle raised and sharply margined by a stout carina; the keels bordering the apex depressed. Median segment coarsely transversely striated; the depression at the base extending to the edges of the segment; broad in the centre, much narrower at the sides; the apex is lemon-yellow; the keel distinct; at the sides on the apical third is a short, curved keel. Pro- and meso-pleuræ yellow, suffused with rufous; the meta-pleuræ not quite so yellowish, except at the apex; the central keel is complete, the part below it finely, obliquely striated. Legs coloured like the thorax; the hinder tibiæ and tarsi paler, through being densely covered with short, white hair; the hinder tarsi are longer than usual, compared with the tibiæ. Wings clear hyaline; the stigma

fulvous; the nervures blackish; the areolet oblique, narrow; the lower part of the second transverse cubital nervure obliterated, and from the apex of the thick part a faint nervure runs obliquely to join the recurrent nervure; the top of the areolet is sharply triangular. Abdomen ferruginous, if anything darker towards the apex.

HETEROPELMA RETICULATUM, *sp. nov.*

*Nigrum; antennis, tegulis, abdomine pedibusque posticis rufis, facie, coxis trochanteribusque anterioribus flavis; alis violaceis, stigmate testacco.*

Long. 20 mm.

Head black; the face, clypeus, mandibles, palpi and a short line on the inner orbits above the antennæ yellowish with a fulvous tinge. The front finely rugose; the vertex irregularly reticulated, the inner orbits above, acutely keeled, thickly covered with longish, fuscous hair; the face projects roundly in the middle, is strongly irregularly transversely striated; the clypeus is less strongly punctured, transverse in the middle, its sides oblique. Mandibles yellow, the teeth black, the base of the mandibles punctured, the face sparsely covered with long, fuscous hair. Mesonotum closely, the middle rugosely, punctured; thickly covered with short, fuscous hair; the apex of the mesonotum and the scutellum coarsely transversely striated. Metathorax coarsely and strongly reticulated and covered thickly with fuscous hair. Propleuræ coarsely obliquely striated; its base smooth; the apex above coarsely aciculated. The base of the mesopleuræ strongly obliquely irregularly striated, forming irregular reticulations in the middle; the apex strongly crenulated; the metapleuræ above and below with some stout, transverse keels. Mesosternum finely punctured; the middle deeply furrowed, widest towards the apex; on the basal two-

thirds are five stout, transverse keels. The four anterior legs are fulvous, more yellowish in tint towards the base; the hinder rufous; the apical fourth of the tibiæ black; the metatarsus more than four times the length of the second joint, and twice the length of the four apical joints united; the hinder tarsi are longer than the tibiæ; the claws simple.

This species on the whole fits fairly well into *Heteropelma*. The parapsidal furrows are distinct; the metanotal spiracles I cannot find; those on the petiole are placed near the apex; the metathorax is distinctly narrowed towards the apex; the mandibular teeth unequal, but not conspicuously so; the first recurrent nervure is received in the middle.

#### HETEROPELMA FULVITARSE, sp. nov.

*Nigrum; abdomine pedibusque rufis; facie, clypeo, mandibulis palpisque flavis; coxis posticis supra apicisque tibiarum posticarum nigris; alis fusco-hyalinis, stigmate testaceo.* ♀.

Long. 17 mm.

Antennæ dark rufous, the basal part of the flagellum darker above. Head black; the face, clypeus, the inner orbits above the antennæ, the mandibles and palpi yellow; the mandibular teeth black; the face and clypeus sparsely covered with long, white hair; coarsely, but not closely, punctured; the front and vertex coarsely obliquely striated; the striæ curved, more closely pressed together above than below. Mesonotum strongly punctured at the sides, the middle irregularly reticulated. Metathorax strongly reticulated. The middle of the propleuræ strongly obliquely striolated; the lower part coarsely, obliquely aciculated; the upper part at the apex, strongly, but not closely, punctured. Mesopleuræ finely and closely punctured, the middle at the apex smooth. Mesosternum

sparingly punctured; the central furrow shallow, much widened towards the apex; across it are four stout, widely separated keels, united by a fine longitudinal one. Legs dark rufous, the four anterior with a more yellowish hue, in front, especially at the base; the hinder coxae are broadly black above; the apical third of the tibiae black, the hinder tarsi spinose, the apical joint black, the basal fully four times as long as the second and twice the length of the others united. The first recurrent nervure is received shortly before the middle of the cellule; the transverse median shortly before the transverse basal. Abdomen long; the basal two segments above more or less black.

A smaller and more slender species than *H. reticulatum*; may be known from it by the petiole and hinder coxae being black above, by the front and vertex being distinctly reticulated, by the apex of the petiole not being abruptly narrowed into a point, but narrowed gradually, and by the much shallower mesosternal furrow.

ANOMALON TINCTIPENNE, *sp. nov.*

*Nigrum; abdomine ferrugineo; pedibus anterioribus flavo-testaceis, posticis ferrugineis, dimidio apicali tibiarum nigro; tarsis flavis; alis fulvo-hyalinis.* ♀.

Long. 22 mm.

Scape of antennae thickly covered with long, pale hair; yellowish rufous above; the basal half of the flagellum rufo-fuscous, the apical clear rufous. The face, clypeus, the inner orbits above to the end of the ocelli—the yellow narrowed, almost interrupted, in the middle—a narrow line on the middle behind, the palpi and the mandibles, except the teeth, yellow; the front at the sides stoutly obliquely striated, the middle less strongly and the striae forming irregular reticulations. The face projects roundly in the

middle, is covered with long, white hair and bears large, distinctly separated punctures; the clypeus is sparsely punctured at the base; the apex impunctate, depressed in the middle. The mandibles at the base are covered with long, white hair. Mesonotum punctured; the middle lobe more strongly than the sides and raised above them; at its base they almost form reticulations, and in the middle of the basal three-fourths is a shallow furrow; on the outer side of the lateral lobes the punctures are more widely separated. Scutellum strongly punctured laterally, the punctures running into reticulations; the middle depressed, the raised sides bordered on the inner side by an indistinct, irregular keel; the sides towards the middle are rufous. Metathorax strongly reticulated; the base and sides thickly covered with pale fuscous hair. The base of the propleuræ aciculated; the upper part of the middle strongly longitudinally striolated; the upper closely punctured; the lower coarsely longitudinally striolated. The base and upper part of the mesopleuræ coarsely irregularly reticulated; the lower closely, but not deeply, punctured; the middle almost impunctate; the apex crenulated, deeply and widely depressed. The extreme base of the metapleuræ is smooth, bordered on the posterior edge above with large, round punctures; below with some stout keels. The four front legs are pale fulvous; the trochanters yellowish; the hinder legs dark ferruginous; the apex of the tibiæ broadly black; the apex of the tarsi inclining to yellow. Abdomen ferruginous; the middle of the petiole infuscated; the second segment black above. Wings hyaline, with a fulvo-fuscous tint; the stigma dark fulvous.

ANOMALON CARINIFRONS, *sp. nov.*

*Nigrum; flagello antennarum, pedibus, apice metanoti*

*abdomineque rufis; facie, orbitis oculorum tarsisque posticis flavis.* ♀.

Long. 16 mm.

Scape of the antennæ reddish, yellowish on the under side, the second and third joints deep black ; the rest rufous, yellowish on the lower side. Head black ; the face and clypeus, a small, somewhat triangular, mark touching the top of the eyes opposite the ocelli, and the outer orbits from shortly above the middle, yellow. Front and vertex closely but not strongly rugose ; the inner orbits distinctly margined ; above, and between the antennæ, is a stout keel, which becomes gradually wider towards the apex ; the face is indistinctly longitudinally keeled ; the clypeus is much less strongly punctured than the face and, at the apex, is almost smooth. Mandibles and palpi coloured like the face ; the mandibular teeth black ; the vertex is thickly covered with short, black hair. Thorax black ; the edge of the pronotum at the base, a narrow interrupted line on the sides, a broader line on the side of the mesonotum extending from the middle of the pronotum to behind the tegulae, and the apical half of the metapleuræ, rufous. Mesonotum very closely and uniformly punctured ; densely covered with short, black hair ; the scutellum is more strongly, and not so closely punctured. The base of the median segment is closely rugose ; in the middle are two indistinct keels forming an area, the rest reticulated, thereticulations longer at the sides and apex. The propleuræ at the base minutely punctured and thickly covered with white hair, this part being separated from the rest by a narrow keel ; the upper part behind this is rather coarsely punctured, the lower more finely and irregularly striated ; the mesopleuræ closely punctured ; the middle with an indistinct depression ; the lower part at the base irregularly striated. At the

base of the metapleuræ is a smooth, rufo-testaceous depression distinctly bordered on both sides; the oblique depression behind this is wide at the top and rufous in colour; lower down it is narrowed and marked with a few stout keels; the rest coarsely reticulated. The mesonotum is furrowed down the middle, the furrow becoming gradually wider towards the apex and marked throughout with stout transverse keels; on either side of the furrow it is aciculated, more faintly towards the sides, where it has a leaden hue; at the base it is oblique and rufous at the sides; at the apex it is more rounded and not so abrupt. The four anterior legs are fulvous, the coxæ of a more yellowish hue; the hinder legs are of a deeper red; the coxæ without any yellow tint; the apex of the tibiæ broadly black; the tarsi yellowish fulvous. Wings hyaline with a smoky fulvous tint; the stigma fulvous; the costa and stigma darker. Abdomen rufo-fulvous; the second segment black above. The hinder coxæ and trochanters may be slightly marked with black.

CAMPOPLEX FUSCIPALPIS, *sp. nov.*

*Niger; abdomine late rufobalteato; tibiis tarsisque anticis testaceis; alis hyalinis.* ♀.

Long. 8 mm.

Antennæ black; the apex of the scape testaceous; the flagellum densely covered with a black, microscopic pile; the scape with longish, white hair on the under side. Head entirely black; the middle of the mandibles piceous; the palpi fuscous, and covered with black hair; the face and clypeus closely, uniformly, and rather strongly punctured, sparsely covered with silvery pubescence; the front and vertex punctured like the face; the sides of the front covered with longish, silvery pubescence; the vertex with a much shorter, fuscous pile. Thorax black; the meso-

notum thickly covered with a dark fuscous pile; the scutellum thickly with long, pale hair; the median segment more sparsely with silvery pubescence. Propleurae closely punctured; the lower part finely longitudinally striated; the lower part of the mesopleurae at the base shining and marked with a few fine striations; the apex above finely, distinctly and closely striated to near the middle, the striae slightly curved; the metapleuræ to the spiracles closely punctured; behind them closely irregularly striated. Median segment punctured like the mesonotum; the base from the middle to the apex broadly depressed; the centre more sparsely, the sides more thickly covered with long, white hair. Legs black; the apex of the anterior femora all round and the under side to the middle, the tibiæ and the tarsi testaceous. Wings clear hyaline, the costa and stigma black; the nervures paler; the areolet very shortly appendiculated at the top; the nervures touching; the first transverse cubital nervure straight, the second slightly curved; the recurrent nervure is received almost in the middle of the areolet. Abdomen black; the apex of the second segment, its sides more broadly, the third entirely and the fourth, except above, rufous.

CAMPOPLEX TYRANNUS, *sp. nov.*

*Niger; abdomine rufo, petiolo nigro; pedibus fulvotestaceis; coxis, trochanteribus, femoribus posticis, apice tibiarnum posticarum tarsisque posticis nigris; alis hyalinis, nervis stigmateque fuscis ♂.*

Long. 9 mm.

Antennæ entirely black; the flagellum covered with short, black pubescence; the scape thickly on the under side with long, black hair. Face and clypeus closely and rather coarsely uniformly punctured, and thickly covered with dark fuscous hair. Teeth of the mandibles ruf-

testaceous; the palpi pale yellow; the part immediately under the antennæ is closely transversely striated. Thorax entirely black; the mesonotum thickly covered with short, fuscous pubescence, the pleuræ and median segment with longer, silvery hair. The propleuræ shining; the upper edges aciculated; the apex bordered by a furrow, narrow at the top, wider and deeper towards the bottom where, in the middle, it is deeply excavated and obscurely striated. The mesopleuræ below the tegulæ strongly longitudinally striolated; the base furrowed from top to bottom, the furrow not reaching quite to the keeled apex of the propleuræ and transversely striated; the upper keels extending beyond the base of the furrow. Mesopleuræ strongly punctured; the oblique depression strongly, and slightly transversely striolated; the apex longitudinally aciculated. Metapleuræ finely rugose; keeled down the middle; the keel sharply bent at the base before the spiracles. Mesonotum closely punctured; the scutellum coarsely rugose, covered with long, pale hair; the sides deeply excavated, smooth; median segment thickly covered with long silvery hair; furrowed down the middle; closely transversely striated. Wings clear hyaline; the areolet petiolated; the transverse cubital nervures curved; the recurrent nervure is received in the apical third. All the coxæ and the four posterior trochanters and the hinder femora black; the fore legs are yellowish; the middle femora of a more rufous tint; the hinder tibiæ thickly spined, rufous; their apex and the hinder tarsi black. Petiole and the second segment above black; the third segment rufous; the others rufous, largely tinged with black.

CAMPOPLEX HIMALAYENSIS, *sp. nov.*

Long. 17-18 mm.

Antennæ entirely black; the scape shining, sparsely

covered with long, black hair; the flagellum thickly with a black, microscopic pile. Front and vertex bearing widely separated, shallow punctures, thickly covered with short, blackish hair; in the centre, between the ocelli, is a shallow furrow; the face and clypeus, except at the apex strongly punctured; the mandibles are coarsely punctured; before the teeth is a large, dirty testaceous mark, which is sharply oblique at the base; the palpi fulvo-testaceous. Thorax entirely black; the mesonotum closely, but not strongly, punctured; on the sides at the apex are two shallow, indistinct furrows; the scutellum is more strongly, more rugosely, punctured; the postscutellum is flat, rugose, the sides carinate. The median segment at the base is finely rugose; from its centre run two curved keels, from the middle of which runs a deep and wide depression to the apex of the segment; the entire apex before the keels is transversely, at the apex more obliquely, strongly striated, and thickly covered with white hair; from near the apices of the two basal keels run stout, curved keels; at the base of this, on the inner side, are two short keels, and on the outer side two longer, oblique ones. The base of the propleuræ strongly aciculated; the hollowed middle strongly obliquely striated; the lower striations stronger than the upper. Mesopleuræ punctured; on the upper edge it is raised; the middle acutely keeled; above the keel, bearing curved striations; below it, at the base, strongly obliquely; the middle with a few stout keels; the apex regularly marked with curved striations; the lower part at the base with stout, longitudinal striations; the apex is depressed, crenulated. The base of the metapleuræ is irregularly rugose; the oblique furrow deep, irregularly crenulated; at the base is an almost smooth, clearly defined, flat, shallow furrow; the upper half is strongly obliquely striated, the lower closely rugosely

punctured, clearly separated from the upper striolated part by an oblique keel. All the coxae are black, as are also the four posterior trochanters; the anterior tibiae and tarsi are more yellowish in colour; the hinder femora are broadly marked with black on the under side to the middle; the hinder tarsi are infuscated. Wings uniformly smoky, with a faint violaceous tinge; the transverse cubital nervures unite at the top, but do not form a peduncle; the first is straight, oblique; the second slightly curved. Petiole entirely black, except for a rufous spot on the side near the apex; the second and third segments are broadly black above; the others are narrowly, and not completely, black above.

CAMPOPLEX CARINIFRONS, sp. nov.

Long. 14-15 mm.

Similar in the coloration of the body to *C. himalayensis*, but is smaller; has the front distinctly keeled down the centre; the scutellum is more distinctly pyramidal and with the depression at the base larger and deeper; the propleuræ much more strongly and regularly striolated on the lower side on both sides of the depression; the areolet is shortly, but distinctly, appendiculated; and the petiole is only black above.

Antennæ entirely black; the scape punctured, rather thickly covered with longish, black hairs; the flagellum with a microscopic down. Vertex closely punctured, thickly covered with longish, black hair; on the outer sides of the hinder ocelli is a distinct furrow; between them, in the middle, is a longitudinal furrow; the front is depressed; in its centre is a stout, longitudinal keel; the apex of the clypeus has only some large, widely separated punctures; the mandibles have a pale rufo-testaceous hue; the palpi are dark rufo-testaceous; the face is

thickly covered with pale hair. Mesonotum closely and uniformly punctured ; its middle lobe slightly raised. Scutellum raised, pyramidal, thickly covered with long, black hairs ; the depression at the base deep, the postscutellum rugosely punctured. The keel on the median segment is curved laterally ; at the middle it does not join the base of the segment, being separated by a small, smooth, square area ; the part of the sides enclosed by it is closely punctured, the punctures more minute at the base, running at the apex into obscure reticulations ; the apex of the segment is broadly depressed in the middle, and strongly transversely striated. The upper part of the propleuræ closely punctured ; the lower strongly striated, the striae rounded and meeting in the middle of the hollow. Mesopleuræ strongly punctured ; the part below the tubercles very finely and closely, the base of the hollow more strongly and irregularly, striated. The central furrow on the mesosternum is triangular at the base. Wings smoky, with a violaceous tinge towards the apex ; the areolet is narrowed, almost appendiculated at the top ; the recurrent nervure is received shortly beyond the middle. All the coxæ and the four hinder trochanters are black ; the hinder femora are black in front ; the hinder tarsi are blackish. The petiole, second and third segments are broadly black above ; the others only narrowly black.

BOSMINA, *gen. nov.*

Wings without an areolet. Spiracles of the metathorax small, oval ; those of the petiole placed between the middle and the apex. Claws armed with stout, stiff bristles. Antennæ as long as the body. Eyes roundly, but not deeply, incised on the inner side above. Clypeus not separated. Mandibles with two stout, unequal teeth. Median segment with a double row of distinctly defined

areae at the base. Petiole long, slender, carinate on the lower side; the ovipositor short. Scutellum not much raised, slightly longer than its breadth, the apex distinctly margined, rounded.

Comes near to *Charops*, with which it agrees in wanting the areolet, but that genus may be known from it by the eyes being deeply emarginate, the scutellum depressed and the antennæ scarcely half the length of the body. Apart from the absence of the areolet it comes near to *Campoplex*, which may be known from it by the much larger and more elongated spiracles. The spiracles are more oval than in *Limneria*, and the median segment has the areae more numerous and more distinct.

BOSMINA SPINIPES, *sp. nov.*

*Nigra; scapo antennarum, pedibus abdomineque rufis, tegulis, coxis anticis trochanteribusque flavis; alis hyalinis, nervis stigmatisque fuscis.* ♀.

Long. 8 mm.

Scape of antennæ sparsely covered with long, pale hair; the flagellum thickly covered with short, black hair. The face and clypeus thickly covered with long, silvery hair; the base of the mandibles broadly, and the palpi pallid yellow; the base of the mandibles covered with long, golden hair; the vertex closely, the front more strongly, punctured and keeled down the middle; the outer orbits covered with long, silvery pubescence. Thorax entirely black; the mesonotum closely punctured; thickly covered with a short, black pile; the pleuræ and median segment thickly with longish, silvery hair. On the middle of the propleuræ are stout, curved, distinctly separated keels; there is a striated space on the middle of the mesopleuræ, the striæ strong at the base, minute at the apex; the metapleuræ are more strongly punctured than the

mesopleuræ; the spiracular region is bounded by two keels and is strongly transversely punctured. The tibiæ and tarsi are spinose, the coxæ thickly, the femora more sparsely covered with shorter, white hair. The petiole is black, except at the apex; the second segment has the basal third black; the sheaths of the ovipositor black. On the median segment there are five clearly defined areæ, besides a small central one at the base; the spiracular region has two complete keels; the tibiæ and tarsi are more strongly spinose than usual; the spines on the claws are stout.

TRATHALA, *gen. nov.*

Wings without an areolet. Claws pectinated. Metathoracic spiracles oval. Spiracles of first abdominal segment small, round, placed behind the middle. Clypeus separated from the face, and with a large fovea on either side at the base. Mandibles large; the teeth subequal. Head not dilated behind the eyes. Median segment distinctly areolated. Wings short; the recurrent nervure is received on the outer side of the first transverse cubital; the transverse basal nervure is interstitial. Abdomen long, compressed, and with a long ovipositor. Eyes bare, not reaching to the base of the mandibles. Scutellum convex, its sides and apex coarsely striolated. The apex of the clypeus rounded. Parapsidal furrows only indicated at the base of the mesonotum.

This genus comes near to *Campoplex*, from which it differs in the absence of an areolet, in the transverse basal nervure being interstitial, in the greatly elongated ovipositor, and in the median segment having distinct areæ.

TRATHALA STRIATA, *sp. nov.*

*Nigra; pedibus abdominisque apice rufis; coxis trochan-*

*teribusque anterioribus flavis; alis hyalinis, nervis stigmateque nigris.* ♀.

Long. 15 ; terebra 10 mm.

Antennæ black, the scape yellow, black in the middle above. Head black, the inner orbits from opposite the lower ocellus, the face, clypeus, palpi and mandibles, yellow; there is a large black mark on the face below the antennæ; the mandibular teeth are black; the face and clypeus are strongly punctured. The vertex is punctured, but not closely or deeply; the front is more shining and transversely striated. Thorax closely and strongly punctured; the scutellum is, if anything, more strongly punctured than the mesonotum; the sides and apex are strongly striated, the striae distinctly separated and extending to shortly below the middle, the lower space being smooth. The postscutellum is represented by a semi-circular keel, the part between being hollowed; behind, it is rugose. Pleuræ strongly and closely punctured; the middle of the mesopleuræ is longitudinally striated; behind the striations, smooth; on the lower side of the mesopleuræ and extending to the middle is a striated furrow. On the median segment are two central areae; the basal being the shorter; its base is transverse in the middle; it becomes obliquely wider, then becomes gradually narrowed, the keels bounding the narrowed part being slightly curved, not straight like the basal; its apical half is transversely striated; the apical area is more strongly transversely striated. The basal outer area is closely and finely punctured; the apical is transversely rugose; the spiracular area is distinctly defined, of equal width throughout, and is closely transversely rugose; its apex is rounded and ends opposite the base of the middle coxæ; behind it is a narrow area, reaching to the hinder coxæ; inside, this area is coarsely rugose. The basal and

apical divisions of the radius are oblique; the apical (and larger) is not quite so straight; the recurrent nervure is largely bullated at the top. The wings do not reach much beyond the apex of the second abdominal segment. The petiole entirely, the second abdominal segment above, and the base of the third, are black; the rest rufous; the petiole is smooth at the base; beyond the middle are some scattered punctures; the sides above before the apex are finely and closely striated; the second segment above is closely and finely longitudinally striated, except at the apex, which is smooth; the basal portion of the third segment is similarly striated; in the middle above, these two segments are depressed.

LIMNERIA BUDDHA, *sp. nov.*

*Nigra; abdomine rufo, petiolo nigro; pedibus rufis; trochanteribus coxisque anterioribus flavis; alis hyalinis, stigmate fusco.* ♀.

Long. 7; terebra 2 mm.

Scape of the antennæ yellow, blackish above, below covered with long, pale hair; the flagellum thickly covered with short, black hair. Head black; the mandibles and palpi yellow; the mandibular teeth black, piceous at the base. The face and clypeus closely uniformly and rather strongly punctured, thickly covered with fuscous and silvery pubescence; the front and vertex less strongly punctured than the face and more shortly and sparsely pilose. Thorax black, closely punctured; the mesonotum sparsely covered with short fuscous; the rest more thickly with longer, silvery hair. The scutellum is less strongly punctured than the mesonotum; the depression at its base covered in the middle with longish, white hair; the postscutellum with a round, deep fovea on either side; the part at the sides of it very smooth and shining. Median seg-

ment closely punctured; the apex in the middle transversely striated; the central keel longish; the lateral roundly curved. Propleuræ closely punctured, running into longitudinal striations; the mesopleuræ closely punctured; the oblique depression, in the middle behind, finely striated; the metapleuræ similarly punctured; the curved keel in the centre is stout, attenuated at the apex. The four anterior legs are fulvous, the trochanters and coxæ yellow; the hinder legs darker, more reddish, in tint; the coxæ, the base and apex of the tibiæ and the tarsi blackish; the calcaria yellow. The petiole is black; the basal half distinctly narrowed; the basal three-fourths of the second segment black; the apex rufous; the base of the third is black in the middle; the ventral surface yellowish in the middle; the sheath of the ovipositor black.

#### LIMNERIA INDICA, sp. nov.

*Nigra; abdomine pedibusque rufis; coxis petioloque nigris; alis fusco-hyalinis.* ♀.

Long. 7 mm.

Antennæ black, thickly covered with white pubescence; the scape yellowish at the apex beneath. Head black; the eyes on the inner side distinctly margined; the face closely, but not strongly, punctured; thickly covered with short, silvery pubescence; the mandibles and palpi lemon-yellow; the mandibles piceous black at the apex; the vertex on the lower side close to the eyes faintly transversely striated. Thorax entirely black; covered with a sparse, white pubescence; the top, at the base, and the hinder part of the propleuræ closely striated; the mesopleuræ closely punctured; the middle above with an oblique, shallow depression; the part in front of it being obscurely transversely striated; behind more shining than elsewhere. Median segment

closely punctured, thickly covered with short, white pubescence ; the base is more finely punctured than the rest ; is keeled down the middle, and, from the apex of this central keel, run two curved keels, which do not curve backwards to the base of the segment ; below the spiracle is a curved keel, straight and oblique at the base, curved towards the apex of the segment. Wings hyaline ; the nervures fuscous, the stigma slightly darker ; the areolet is oblique, small, shortly petiolated at the top ; the recurrent nervure is received shortly beyond the middle. All the coxae are black, except at the apices, where they are pale yellow, as are also the four anterior trochanters ; the four anterior femora, tibiae and tarsi are also paler, not so reddish as the posterior ; the hinder tibiae are sparsely spinose ; the tarsi infuscated. Abdomen ferruginous ; the petiole black, except at the apex ; the ventral surface yellowish ; the sheaths of the ovipositor black.

LIMNERIA VOLENS, *sp. nov.*

*Nigra ; abdomine rufo, basi late nigro ; pedibus fulvis ; coxis trochanteribusque anterioribus flavis ; coxis posticis nigris ; alis hyalinis, stigmate testaceo.* ♀.

Long. 7 mm.

Antennæ black ; slightly thickened towards the apex ; the scape covered with white hair ; the flagellum with pale down. Face and clypeus coarsely shagreened ; sparsely covered with short, white hair ; the front and vertex opaque ; the mandibles and palpi pallid lemon-yellow ; the apices of the mandibles black and piceous. Thorax black, opaque, the pleuræ and metanotum covered with white pubescence. The propleuræ not excavated, the base broadly raised ; coarsely shagreened ; the lower part in the middle strongly transversely striated ; the mesopleuræ strongly aciculated, except in the middle

behind; the base on lower side curved, distinctly margined; the apex strongly crenulated; in front of the middle coxae is a short, oblique furrow; the metapleuræ coarsely aciculated; at the base, below the spiracles, is a short depression. On either side of the postscutellum is a round fovea, clearly margined; the part on either side of the postscutellum is longitudinally striated. The base of the median segment is raised and sharply separated from the postscutellum; the segment itself is coarsely sha-greened; the curved keel is widely separated from the base, and, behind it, is an interrupted, longitudinal one; the keel bordering the apex is indistinct at the top. Legs rufous; the four anterior coxae and trochanters pale yellow; the hinder coxae and the basal joint of the trochanters above, black; the hinder tarsi infuscated. Wings clear hyaline; the stigma fuscous; the nervures paler; the areolet small, shortly appendiculated; the lower half of the second transverse cubital nervure largely bullated, almost obliterated; the recurrent nervure is largely bullated above and is received in the apical third of the areolet. The petiole and the upper side of the second segment, except the apex, black; the ventral surface yellow; the sheaths of the ovipositor black.

This species is nearly related to *L. indica*, which differs from it in being larger; in having the four anterior coxae black, except at the apex; in the second segment being without black; in the apex of the median segment not being bordered by a keel; in the areolet being more distinctly appendiculated, &c.

#### PIMPLIDES.

##### RHYSSA FULVIPENNIS, sp. nov.

*Nigra, flavo-variegata; antennis pedibusque fulvis; alis fulvo-fumatis, stigmata testaceo.* ♀.

Long. 38-39; terebra 65 mm.

Antennæ fulvous; more yellowish in tint about the middle; the scape shining, almost bare. Head fulvous, the face paler, more yellowish; the front and vertex to the end of the ocelli, a band extending from the latter to the occiput and of the width of the ocellar region, and a band on the upper part of the occiput, black. Mandibles black, as is also the part behind the clypeus. The projecting part of the face punctured, but not strongly; the sides quite smooth; the pubescence sparse, fuscous; the front and vertex are obscurely punctured, smooth, almost glabrous. Mesonotum black; sparsely pilose; on the base of the middle lobe is a somewhat  $\Delta$ -shaped fulvous mark; there is a similarly coloured line in the middle on the inner side of the middle lobe, and a shorter line alongside the tegulæ. Scutellum finely, transversely punctured; pale fulvous yellow; a large, somewhat oval, black mark at its base, and a somewhat triangular one at the apex; postscutellum shining, pale fulvous yellow, broadly black in the middle. Median segment smooth and shining; at its base in the centre is a large, deep depression, broader than long, and having at the sides some longitudinal keels. Propleuræ very smooth and shining; the upper part is occupied by a large, pale fulvous mark, which, posteriorly, is prolonged downwards to shortly below the middle; the basal part at the base is similarly, but more narrowly, coloured, from the middle on the basal part to near the end on the lower side; the apex is depressed and crenulated. Mesopleuræ finely punctured, the apical furrow narrow, crenulated; the tubercles and a large mark occupying the greater part of the pleuræ posteriorly, fulvous yellow; this mark is slightly oblique, longer than broad, the top straight at the base; the apical part oblique; the upper part above conically indented. Legs rufous; the posterior tarsi slightly yellowish; the four anterior

coxæ and trochanters yellow; the posterior coxæ of a darker rufous than the femora, and marked with black at the base; behind, at the base, is a small, yellow mark. Wings deep fulvous; the apex slightly infuscated; the costa and stigma fulvous; the nervures black; the areolet triangular; the first transverse cubital nervure oblique, straight; the second curved; the recurrent nervure is received in the apical fourth of the areolet. Abdomen shining; the petiole rufous; the other segments dark rufous; the second segment above marked with two broad, obscure fulvous lines; the others marked laterally with fulvous lines, broad at the base, becoming obliquely narrowed towards the apex; the basal ventral segment rufous; the others yellowish; the sheaths of the ovipositor dark fulvous towards the apex.

EPIRHYSSA FLAVO-BALTEATA, sp. nov.

*Fulva, flavo-maculata; antennis rufo-testaceis, apice nigris; alis fulvo-hyalinis, apice fusco-maculatis, stigmate rufo-testaceo.* ♀.

Long. 13-22; terebra (in large size) 25 mm.

Antennæ dark rufous, darker towards the apex; the scape yellowish beneath. The lower half of the front and the face yellow; the vertex behind the ocelli rufous; the face closely punctured, thickly covered with short, white hair; the clypeus short, the sides at the apex rounded; the base with a trilobate depression, the central lobe curved, the lateral smaller and much deeper. Mandibles short and broad, the basal half rufous, the apical deep black; the palpi pale yellow. Thorax yellowish; the mesonotum dark rufous; black in the middle beyond the central lobe; the central lobe raised, its base with an almost perpendicular slope, and black on the lower part;

the striations are stout; on the apex, bordering the central black band, is an obscure yellow one. Scutellum yellow, black at the apex; transversely striated. Postscutellum smooth, lemon-yellow, bifoveate at the base. The base of the median segment deep black, shining, broadly depressed in the middle; at the base are two transverse keels; the segment has a rounded slope, and is covered with shallow, clearly separated punctures; the apex almost impunctate and deep black; the middle has a deep and wide furrow, which does not extend into the apex. Propleuræ punctured; the middle obliquely depressed, black on the basal half, and smooth; the extreme apex black, and coarsely punctured; the extreme base of the mesopleuræ black; below the tubercles is an oblique, blackish band, from which another, broader and less oblique, runs to the bottom; the tubercles are large, longer than broad, depressed at the base and apex; the apical furrow is crenulated. The base and apex of the metapleuræ depressed and black; below the spiracles is an oblique keel. The mesosternum closely and strongly punctured, with a wide, stoutly transversely striated furrow down the middle. Legs yellow; the femora with a rufous tinge; the hinder coxæ darker in front; the tarsi (especially the hinder) infuscated. Wings fulvo-hyaline; the stigma dark rufous; the nervures darker; on the apex of the radial and the second cubital cellule is a fuscous cloud; the recurrent nervure is interstitial. Abdomen dark rufous; the apices of the segments broadly yellow; the basal two segments are slightly and widely punctured; the middle much more closely and strongly; the apical closely, but not so strongly, and thickly covered with fuscous hair.

The amount of the black and yellow colour varies, as does also the size.

EPIRHYSSA CARINIFRONS, *sp. nov.*

*Nigra; facie, orbitis oculorum, linea pronoti late, scutello, postscutello apiceque metanoti flavis; abdomine flavomaculato, apice brunneo; pedibus fulvis, basi flavis; tarsis fuscis; alis hyalinis, apice fumatis, stigmate fusco.* ♂.

Long. 11 mm.

Antennæ rufous, thickened and infuscated towards the apex ; the flagellum covered thickly with stiff, microscopic hair. The face yellow, covered with large, deep punctures and with long, white hair ; the clypeus smooth, bare, its apex transverse. Front depressed ; from the ocelli a distinct keel runs to the base of the antennæ ; it is yellow, with a black line in the middle ; the vertex is black ; the black extending as a triangular mark on to the front on either side of the keel, and extending to the eyes at the ocelli ; the occiput is black round the upper edge, the black extending down the middle as a broad band. Mandibles black, the basal half rufous ; the palpi yellow. Thorax black ; the scutellum, postscutellum, a broad band near the middle of the median segment, extending near to the apex, and on the pleuræ extending to near the spiracles ; the upper part of the propleurae broadly, and the prosternum, lemon-yellow. The mesonotum is covered with fuscous hair ; the scutellum coarsely punctured, covered with long, fuscous hair ; the postscutellum smooth ; the scutellar keels are yellow. Metanotum smooth at the base ; the middle depression deep and wide, smooth ; the rest of the segment bearing shallow punctures and sparsely covered with white hairs. The propleurae, except above, impunctate ; the mesopleurae sparsely punctured, except at the apex ; the tubercles large and thickly covered with long, white hair ; the mesosternum coarsely punctured ; smoother in the middle at the apex, where there is a depression which becomes

gradually wider towards the apex; the metasternum smooth. Wings hyaline, with a faint fulvous tinge, a fuscous cloud occupies the apex of the radial and the greater part of the second cubital cellule; the costa and stigma rufo-testaceous; the nervures darker, paler towards the apex. Abdomen dark rufous, the apices of the basal four segments more or less yellowish, the second and following segments broadly black at the base; the petiole smooth; the others closely punctured, and covered (especially the apical) with short, fuscous hair. The four anterior legs yellowish, the femora fulvous behind; the hinder coxae black, broadly yellow in the middle behind; the femora dark fulvous; the tibiæ and tarsi fulvous, but lighter in tint than the femora.

EPIRHYSSA MACULICORNIS, *sp. nov.*

*Flava, nigro-maculata; antennis nigris; alis hyalinis, apice fumatis; terebra corpore longiore.* ♀.

Long. 15; terebra 20 mm.

Antennæ black, slightly thickened towards the apex; the basal joints of the flagellum brownish beneath; the apical joints brownish red. Head yellow; a broad, black line extending across the ocelli from eye to eye, and behind them in the middle roundly dilated to the edge; in front of them projecting squarely to half way down the front, which is punctured closely but not strongly; the clypeus at the sides impunctate; the middle obscurely transversely striated; the mandibles, and the space between them and the eyes black; the lower part of this black part being smooth, the upper aciculated. Mesonotum black, except at the tegulae, and a large mark in the middle, longer than broad, transverse at the base and with the sides straight; the transverse striations stronger and somewhat more widely separated laterally. Scutellum finely

closely transversely striated ; the extreme apex in the middle black. Postscutellum black, smooth, shining, impunctate. The base of the median segment narrowly black ; its middle smooth, broadly furrowed ; the sides closely punctured ; the apex with a broad semicircular black band. Pro- and meso-pleuræ shining, smooth ; the base of the meso- broadly, its apex more narrowly on the lower side, black ; the metapleuræ obscurely punctured in the middle ; the base and apex lined with black. Mesosternum narrowly, but rather deeply, furrowed down the middle, laterally marked with two transverse rows of fuscous lines. Except for the apical fuscous cloud, the wings are hyaline ; the costa, stigma and nervures black ; the recurrent nervure interstitial ; the transverse median nervure is received distinctly behind the basal nervure. Legs yellow like the body ; the apex of the hind coxæ broadly, the base of the hinder tibiæ and the apices of the tarsi, black. Abdomen shining ; the bases of the segments narrowly, their apices more broadly, black ; the black part on the apices impunctate ; on the base punctured like the rest of the segments ; the apical segments only black in the middle.

#### EPIRHYSSA ANNULICORNIS, sp. nov.

*Cerulea, fulvo-maculata ; antennis nigris, medio late albolineatis ; pedibus fulvis, tarsis posticis albis ; alis hyalinis, basi albis, stigmate nigro.* ♀.

Long. 17 ; terebra fere 15 mm.

Antennæ slender, thickly covered with a black, microscopic pile ; the scape testaceous beneath ; there is a long, white band beyond the middle ; the apex itself is broadly white, except the terminal joint, which is black. Head shining, blue ; the cheeks broadly, the sides of the clypeus more narrowly (and with the yellow obliquely

narrowed from the top to the bottom), a broad line on the inner orbits from the base of the antennæ to the middle of the ocelli, narrowed and rounded at the base and apex and the outer orbits on the lower side broadly, yellow. The face rather strongly punctured; the clypeus black; obliquely depressed at the base; almost impunctate, thickly covered with long, fulvous hair; the palpi yellowish testaceous. Mandibles black, finely punctured at the base; the apex with only the rounded apical tooth. Mesonotum closely punctured; the apical three-fourths irregularly and distinctly reticulated, the reticulation being continued half-way up the raised basal portion as a narrow line; the lateral lobes are furrowed down the middle, the furrow shallow and abruptly narrowed near the apex. Scutellum closely punctured; the apex flat, with a distinct inner, and a more distinct outer, keel; the apex with a transverse keel immediately before its termination; the postscutellum roundly depressed at base and apex; the sides stoutly keeled. The central areae on the median segment united; the basal part curved inwardly and narrowed; the apical with the sides straight; the lateral keel roundly curved on the inner side of the segments; the part on its inner side crenulated; the basal half shagreened; the apical half in the centre strongly, the sides less strongly, transversely striated. Propleuræ shagreened; the top strongly, the apex less strongly crenulated; the lower side smooth, broadly furrowed; the lower side of the furrow with a narrow keel, there being another keel over the prosternum; there being also a perpendicular keel at the base. Mesopleuræ shagreened; thickly covered with pale fulvous hair; its apex depressed, crenulated; the metapleuræ coarsely shagreened above, the rest irregularly longitudinally striolated. Wings hyaline, slightly infuscated along the transverse cubital and recur-

rent nervures; the latter is received immediately on the outside of the transverse cubital, almost touching it; the stigma is white at the base, fuscous on the lower side. Legs fulvous; the hinder tarsi white, except the apical two joints, which are black; the base of the middle coxae, the hinder except for a fulvous mark at the base above, and the middle beneath, the hinder trochanters, base and apex of femora narrowly, the extreme base of the tibiae and their apex more broadly, black; the hinder femora with a distinct bluish tint. The petiole is distinctly longer than the second segment, yellowish; a broad, bluish band, near the middle, closely and coarsely punctured; the apex more or less reticulated, and, in the middle, transversely striated, and with a central and two lateral narrow keels leading into an impunctate spot at the apex. The second segment broadly blue at the base, the apex more narrowly black; at the base, on either side, is a deep, oblique depression; at the base, in the middle, is a somewhat A-shaped depression, deep at the base, shallower, wider, and obliquely striated at the apex; at the apex, on either side, is a wider, shallower, oblique depression, narrowed and deep at the base, becoming wider and shallower towards the apex. Near the base of the third is a wide, shallow, semicircular depression, with a narrow, straight keel in the middle at the base, and with its sides obscurely striated; the other segments smooth, whitish at the apices. The petiole beneath is black at the base, and irregularly marked with semicircular striations; its apex, and the second and third segments in the middle, testaceous.

#### EUGALTA, *gen. nov.*

Wings with or without an areolet. Mandibles meeting at the apex, large, with only one apical tooth.

Clypeus not separated from the face by a suture. Eyes large, reaching near to the base of the mandibles; the upper orbits margined. Mesonotum trilobate, reticulated in the middle at the apex. Metathorax elongate, with a gradually rounded slope to the apex; the spiracles placed near the middle, oval. Legs elongate, slender, the hinder tarsi large, elongate, smooth, or striated on the outer side; the hinder tarsi nearly equal in length to the tibiæ; the claws with a stout basal tooth, shorter than the other, which is curved and thinner; coxæ large, elongate. Abdominal segments smooth; the petiole longer than the second segment, gradually widened towards the apex; the other segments not much broader than their length, smooth; the gastrocœli distinct; the ovipositor long, issuing from a ventral cleft. The spiracles are small, oval, almost round, and are placed near the middle of the segment.

This genus is nearly allied to *Rhyssa* and *Epirhyssa*, which differ from it in the transversely striated mesonotum, in the shorter metathorax, in the mandibles being bidentate, in the shorter petiole, which has the spiracles placed much nearer the base, and in the longer hinder tarsi, which are distinctly longer than the tibiæ.

#### A. Areolet absent.

##### EUGALTA STRIGOSA, sp. nov.

*Nigra; facie, annulo antennarum, pedibus anterioribus, trochanteribus posticis, dimidio basali tibiarum posticarum tarsisque posticis albis; thorace rufo; alis hyalinis, nervis stigmateque nigris.* ♀.

Long. 20; terebra 20 mm.

Antennæ black; the base of the flagellum underneath, and a broad band in the middle, white. The face and

clypeus white, strongly punctured, sparsely covered with long, fuscous hair; the mandibles deep black; the palpi white; the clypeus broadly depressed in the middle. The front slightly depressed, smooth; the orbits sharply margined on the inner side; the vertex on the sides behind strongly punctured. The occiput sharply margined above; raised in the middle, closely punctured. Thorax rufous, above covered with fuscous, the sides with longer white, hair; elongate, fully three times as long as the head; the metathorax large, and with a gradual slope to the apex. The middle lobe of the mesonotum small, triangular, not narrowed at the apex, where it is transversely striated, roundly raised and distinctly separated from the lateral; closely punctured; the bordering furrows crenulated; the lateral lobes strongly punctured; the middle to near the apex stoutly reticulated. Scutellum punctured, irregularly reticulated in the middle; its apex obscure yellow, its border margined on the lower side. Postscutellum coarsely punctured, the base smooth and with an oblique slope, rufous; the rest pallid yellow like the scutellum. Median segment irregularly transversely striated, the basal three-fourths with a shallow furrow down the middle; the apex is pale yellow, with a transverse keel near the base of the yellow part. Propleuræ smooth; the apex near the tegulæ punctured; the lower part with a purple tinge; the prosternum yellowish. Mesopleuræ punctured; the base above and the middle irregularly striated, the former obliquely. Below the middle of the tubercles is a wide, oblique furrow, which becomes narrowed towards the apex; the part below this is raised; at its apex is a smooth space. Mesopleuræ punctured, the centre smooth, with a narrow furrow down it. Metapleuræ rugosely punctured; the upper part especially towards the apex. The four anterior legs are

whitish yellow; the coxae and femora are lined above with black; the hinder coxae are more broadly black above; the trochanters are black above; the femora almost entirely black; the tibiae black, white at the base to near the middle; the tarsi white. Wings hyaline, with a slight fulvous tinge; the stigma and nervures black; the recurrent nervure is received about its length in front of the transverse cubital. Abdomen black; the segments lined with white at their apices, the white lines dilated in the middle. Petiole transversely striated, more coarsely on the basal half; the apical half furrowed down the middle; its sides at the end punctured; the second segment is strongly, the third less strongly, punctured; the others shagreened; the gastrocceli are smooth and deep; the base on the outer side of the segments projects; on the sides of the third segment is a narrow depression.

EUGALTA ALBITARSIS, *sp. nov.*

*Nigra; annulo flagelli antennarum late, tegulis, coxis tarsisque albis; femoribus posticis basique tibiarum posticarum fulvis; alis hyalinis, nervis stigmatisque nigris.* ♀.

Long. 11; terebra 6 mm.

Antennae black; the ninth to seventeenth joints white; the scape pale fulvous beneath. Head black; the face and palpi yellowish white; the clypeus dark brownish; depressed in the middle near the apex, which is rounded. Front and vertex smooth, shining, almost bare, plumbeous black; the inner orbits above distinctly margined; the face covered with long, white, the clypeus more thickly with longer, pale fulvous, hair. Mandibles black. Thorax black; the propleurae plumbeous; its lower edge, the tubercles and tegulae, white. Mesonotum closely and rather strongly punctured; its apex in the middle transversely striated, depressed. Scutella closely punctured;

the postscutellum not much depressed at the base; the depression at its side strongly longitudinally striated. Median segment closely and uniformly reticulated and sparsely covered with fuscous hair. Mesopleuræ closely punctured; a longitudinal depression under the tubercles, a perpendicular one in the middle and a wider oblique one nearer the apex, which is depressed and crenulated. Metapleuræ closely reticulated; the lower side at the base furrowed widely and deeply. The front coxæ white, broadly black behind; the femora and tibiæ whitish, the former fulvous behind; the middle coxæ white, with a black mark on the sides at the apex; the femora obscure fulvous, infuscated in front; the tarsi and the apex of the tibiæ broadly blackish; the large hinder coxæ broadly black on the apical two-thirds, the apical joint of the trochanters, the apical three-fourths of the femora above, the tibiæ, except at the base, and the apex of the tarsi, black. Wings hyaline, iridescent; the nervures and stigma black. Abdomen black; the base and apex of the petiole, the sides of the second segment at the apex, a narrow band on the apices of the fifth and sixth and the seventh segment broadly, yellow. Petiole transversely rugose; the second segment strongly and closely punctured; the second to fourth ventral segments testaceous.

**B. Areolet present, small.**

EUGALTA SPINOSA, *sp. nov.*

Long. 19 mm. ♀.

Agrees closely in coloration with *E. albitalis*, but differs in having the median segment entirely black; in the complete areolet; in the base of the postscutellum being rounded, not depressed, and with the sides margined; in the median segment not being furrowed at the base; in

the base of the petiole being broadly white; and in having on its under side, near the base, a curved sharp tooth.

Antennæ black; the under side of the scape, and a broad band beyond the middle, white; the scape on the under side covered with pale fulvous hair; the flagellum thickly with a microscopic pile. Head black, with a distinct plumbeous hue; the face, the inner orbits to opposite the lower part of the ocelli, the outer orbits on their lower two-thirds and the palpi, yellow. The front and vertex smooth and impunctate, almost bare; there is a furrow between the ocelli; behind the eyes is an obscure rufous patch. Face shining, smooth, sparsely covered with long, fuscous hair. Clypeus obscure rufous (perhaps discoloured), smooth; the apical two-thirds depressed; its apex depressed, rounded at the sides. Mandibles smooth, black, rufous at the base. Thorax dark rufous; the apex of the mesonotum, the median segment above, and the apical half of the metapleuræ, black; the greater part of the propleuræ plumbeous-black. Mesonotum closely punctured; the sides of the raised basal lobe irregularly striated; the depressed apical central part black, and strongly irregularly transversely striated; thickly covered with long, fuscous hair, most densely on the basal lobe. Scutellum punctured, sparsely covered with long, fuscous hair. Postscutellum strongly punctured, except at the apex; the base not depressed; the sides not margined. The lateral scutellar depressions strongly striolated. Propleuræ very smooth and shining; punctured above. Mesopleuræ closely punctured; the tubercles coarsely punctured; the upper part of the base strongly, somewhat irregularly, striated; the apex in the middle smooth. Metapleuræ rugosely punctured, the punctures running into reticulations at the apex and under the wings. Mesosternum shining, thickly covered with long,

white hair. The four anterior legs whitish yellow; the coxae and femora lined with black behind; the hinder coxae black above; the apical joint of the trochanters, the femora and the apical half of the tibiæ, black. Wings hyaline, with a fulvous tinge; the stigma and nervures black; the areolet small, almost appendiculated above through the nervures uniting; the second transverse cubital nervure bullated below; the recurrent nervure is received in the apical third of the cellule. Abdomen black; the apices of all the segments, and the base of the petiole more broadly, yellow; the petiole has the basal half rough, the apex smooth; the spine on the under side is broad at the base, curved and narrowed towards the apex; the second and following segments are closely punctured; the sheaths of the ovipositor thickly covered with short, black hair.

EUGALTA NIGRICOLLIS, *sp. nov.*

*Nigra; facie, tegulis, scutello, lineisque abdominis flavis; pedibus flavis; dimidio apicali tibiarum posticarum nigro; alis hyalinis, stigmate testaceo. ♂.*

Long. 15 mm.

Antennæ absent. Head black; the face and a triangular spot between the antennæ, yellow; the face thickly covered with short, silvery hair; obscurely punctured; the clypeus black, smooth, its apex roundly curved; mandibles deep black. Thorax black, with a distinct plumbeous hue; the mesonotum shining, impunctate; the depressed apex in the middle with four oblique keels on each side, the middle the longer. Scutellum slightly rough, thickly covered with long, white hair; the post-scutellum smooth. Median segment uniformly and closely reticulated; thickly covered with long, white hair. Pro- and meso-pleuræ smooth and shining, impunctate, sparsely

covered with pale hair; metapleuræ above strongly reticulated, the lower part closely reticulated, the reticulations running into punctures; the apex with the reticulations larger. The four anterior legs whitish yellow; the coxæ black behind; the posterior legs have a more decided fulvous tinge and are broadly marked with black on the apical half above; the apical joint of the trochanters, except at the base beneath; the apex of the femora, and slightly more than the apical half of the tibiæ, black. Wings hyaline; the nervures black on the basal part; the apical and the stigma testaceous. Abdomen black, shining, smooth; the base of the petiole broadly, its apex more narrowly, and the apices of the other segments broadly, whitish-yellow. The petiole is oblique, shortly appendiculated above; the recurrent nervure is received in its apical third.

EUGALTA PUNCTULATA, *sp. nov.*

Long 12; terebra 10 mm.

Comes nearer to *E. nigricollis*, but is smaller, and has the mesonotum distinctly punctured; the clypeus semi-circularly depressed at the apex; the petiole shorter; the second segment closely and rather strongly punctured; the hinder tibiæ black, broadly yellow at the base and apex.

Scape of antennæ black, yellowish beneath; the base of the flagellum black—the rest broken off. Head black; the face yellow, the clypeus testaceous, darker in the centre, the palpi yellow. The face shining, projecting in the middle, covered with shallow punctures and with long, pale hair; the clypeus with a raised, broad, semi-circular border at the base, forming a semicircular hollow in the middle. Mandibles black, piceous at the base. Front depressed; the inner orbits margined; the outer

orbits sharply project ; and are marked above with stout, oblique keels. Thorax black ; the tegulæ, tubercles and a line on the apex of the mesopleuræ, yellow. Mesonotum strongly and closely punctured, as is also the scutellum, which is yellow, black at the base, and thickly covered with fuscous hair. Postscutellum almost impunctate and glabrous, yellow. Median segment above reticulated, at the apex, in the middle, the reticulations are wider ; at the sides closer. Propleuræ plumbeous, smooth and shining ; the lower part yellow, broad at the base, narrowed at the apex. Mesopleuræ shagreened ; closely and finely punctured at the base of the tubercles ; the metapleuræ closely reticulated and thickly covered with long, white hair. Mesosternum impunctate, furrowed down the middle. The four anterior legs yellow ; the coxæ lined behind with black ; the four apical joints of the front and the whole of the middle tarsi, black ; the hinder coxæ are broadly black above ; the apical joint of the hinder trochanters, the apex of the femora, which are fulvous, the hinder tibiæ black, with a narrow white band near the base and the apical third, white ; the hinder tarsi white, except the apical two joints which are black. Wings hyaline, iridescent ; the stigma and the apical nervures fuscous, the costa and the basal nervures black ; the areolet small, oblique, shortly appendiculate ; the recurrent nervure is received in its apical third. Abdomen black ; the base of the petiole, its apex more narrowly and the apices of the other segments, yellow ; the petiole smooth, obscurely shagreened in the middle ; the second and third segments closely and distinctly punctured, the others impunctate ; the gastrocceli shallow, indistinct, finely and closely punctured. The base and apex of the petiole beneath yellow ; the sides at the apex depressed ; at the base in the centre is a stout tooth, which is rounded in the middle.

LYTARMES, *gen. nov.*

Mesonotum transversely striated, trilobate, the middle lobe only distinct in front. Clypeus separated from the face, its sides at the base depressed. Mandibles short, thick, bidentate at the apex. The head not much dilated behind the eyes. Arolet appendiculate, the appendicle as long as, or shorter than, the cellule itself; the latter is rounded at the top. The transverse median nervure is received in front of the transverse basal. The recurrent nervure is received near the base of the arolet. The radial cellule elongate, lanceolate at the base and apex. Scutellum flat; the median segment has a gradual slope to the apex; the spiracles are large, elongate, rounded at the base and apex. Abdomen without depressions, smooth; the petiole shorter than the second segment; the spiracles are oval, oblique, and are placed near the base. Legs stout; the hinder coxae large, of equal width, not swollen; the tarsi spinose; the claws simple; the hinder tibiae and tarsi subequal. The intermediate abdominal segments are not longer than their breadth; the segments are aciculate and not emarginate or grooved at the apex; in the ♂ they are convex above. The meta- is shorter than the meso-thorax. The last joint of the hinder tarsi is about three times as long as the penultimate.

The first recurrent nervure is received shortly before the middle of the cellule; there is a short nervure on the cubital nervure, before the arolet, as in *Ichneumon*. Except in the form of the abdomen the ♂ does not differ from the ♀.

This genus has the striated mesonotum of *Rhyssa*, but differs from it in the appendiculated arolet and in the abdominal segments being not distinctly longer than their breadth, in the shorter hinder tarsi compared with the tibiae, in the much shorter hinder coxae, and in the head being less developed behind the eyes.

LYTARMES MACULIPENNIS, sp. nov.

*Niger, brunneo-maculatus; facie orbitisque oculorum flavis; alis fusco-hyalinis, macula substigmatali fumata; pedibus rufo-brunneis.* ♀.

Long. 16; terebra 21 (?) mm.

Antennæ not quite so long as the body; the scape yellowish below, reddish above; the base of the flagellum ferruginous; the apical part blackish. Head: the face and clypeus, the inner orbits broadly to the ocelli, and the outer more narrowly from near the top to the base of the mandibles, yellow; the face fuscous in the middle; the mandibles black, the palpi yellowish. The face punctured, thickly covered with long, fuscous hair; the inner orbits above the antennæ (the yellow part) are raised; the front is black, shining, and transversely striated; the vertex behind the ocelli and the occiput, except at the edges, brownish. Thorax brownish, mottled with black, a broad band on the pronotum, the tubercles, the scutellum, except at the apex, and the scutellar keels, lemon-yellow. The pronotum in the centre is black, shining, and roundly incised. On the mesonotum there are three broad, black lines, the middle one being the longer; the scutellar depression is black and shining. Scutellum punctured, more finely and closely on the apex; the postscutellum is smooth and shining; broadly depressed in the middle; its apex rounded. Median segment smooth and shining; its middle at the base broadly, triangularly depressed; its base ferruginous, the middle lemon-yellow, the apex black. Pleuræ smooth and shining; the lower part of the mesopleuræ roundly projecting. Mesosternum shagreened, thickly covered with fuscous hair; the central furrow blackish, closely transversely striated. The four anterior coxæ and trochanters and the tibiæ in front are more or less lemon-yellow; the basal half of the hinder

tibiae and the hinder tarsi are infuscated ; the hinder coxae dark rufous, marked with black and with a yellow mark on the top behind ; the basal joint of the hinder trochanters yellowish. Wings hyaline, with a distinct fulvous tinge, especially at the base ; the cloud originates at the end of the stigma, becomes gradually narrowed, and reaches to the areolet ; the pedicle of the latter is about two-thirds of the length of the basal branch of the transverse cubital nervure ; the apical branch is bullated on the lower side ; the recurrent nervure is received almost in the middle of the areolet, and is bullated above and below the middle. Abdomen for the greater part black ; the petiole rufous to near the apex above ; the apex black with a lemon-yellow band behind it ; the second segment black, with a large lemon-yellow mark in its middle ; its base triangular, its apex transverse ; these two segments are smooth, the others shagreened ; the third, fourth, and fifth have lemon-yellow marks on the sides, these marks being gradually narrowed on the inner side ; the apical segment is depressed, smooth and shining at the base, and is triangular in shape ; the apical segments are thickly covered with fulvous hair.

LYTARMES HYALINIPENNIS, sp. nov.

*Niger ; facie, orbitis oculorum, scutello, postscutello, metanotoque flavis ; pedibus rufis, coxis flavis ; alis hyalinis, stigmate testaceo.* ♂.

Long. 12 mm.

Scape of the antennae and the base of the flagellum yellowish, the flagellum rufous, darker towards the apex, and thickly covered with short, stiff hair. Head lemon-yellow ; the ocellar region and the middle of the front broadly black ; the vertex behind the ocelli and the occiput, brownish ; the front on the lower part obscurely

transversely striated. The oral region is ferruginous, the mandibles deep black; the palpi yellow; the face punctured; the clypeus smooth. Mesonotum dark brownish with two yellowish, longitudinal stripes; the scutellar depression and a somewhat triangular depression in front of it black. The scutellum, scutellar keels, and postscutellum lemon-yellow, the scutellum rather strongly punctured, thickly covered with long, white hair; the postscutellum smooth, glabrous; the apex of the scutellum brownish. The base and apex of the median segment and the spiracular region black, smooth and shining, sparsely covered with fuscous hair; in the middle at the base, is a depression longer than broad, which becomes narrower and shallower towards the apex. Pleuræ smooth and shining, covered with long, white hair; the upper half of the propleuræ lemon-yellow; the lower black, except on the lower edge, where it is yellowish testaceous. Mesopleuræ black; the tubercles and a large mark below them yellow; the lower edge rufous, the rufous band wider at the apex, where it is continued obliquely upwards to the middle. Metapleuræ yellowish, black round the base, the lower side, the apex and at the spiracles. Meso-sternum rufous, black at the oblique base; strongly punctured, thickly covered with fuscous hair; the middle furrow transversely striated. The front legs fulvous; the coxæ and trochanters yellowish; the middle legs similarly coloured, except that the tarsi are blackish; the hinder legs rufous, their coxæ yellow, broadly marked with black inside and out; the basal joint of the trochanters yellow; the tibiæ and tarsi. blackish, thickly covered with short, pale hair. Wings clear hyaline, the stigma testaceous, the nervures darker; the pedicle of the areolet is half the length of the basal abscissa of the cubital nervure, which is straight; the apical one is curved. Abdomen black; the base of

the petiole and a broad band down its middle, a long line down the middle of the second segment; a narrow transverse one on its apex, the apices of the third, fourth, and fifth segments broadly yellow; the apical segments obscure rufous; the ventral segments, except the apical, testaceous.

### EPHIALTES.

#### A. *Yellow marked with black.*

The Indian species belonging to this genus form two well marked sections.

1. Middle lobe of the mesonotum raised and distinctly separated from the lateral; the median segment coarsely punctured; in the middle at the base with a distinct depression; the second and third abdominal segments with distinct transverse depressions, smooth.

#### EPHIALTES NIGRITARSIS, *sp. nov.*

*Flavus, nigromaculatus; metanoto punctato; alis hyalinis, stigmate fusco, nervis nigris.* ♂.

Long. 16 mm.

Antennæ nearly as long as the body, black; the scape yellow, marked with black above; the base of the flagellum brownish. Head smooth; the face slightly punctured, shining; the front broadly, the vertex at the top and the occiput, black. Mandibles black, yellowish at the base; the palpi yellow; the face slightly projects in the middle at the base, the projection being bordered by black. Thorax shining; the middle lobe somewhat pear-shaped, raised above and clearly separated from the lateral; it is broadly black in the middle; the lateral lobes are broadly black down the middle, the black line somewhat abruptly narrowed beyond the middle and continued across the apex, there being also a broad central line. Scutellum and postscutellum, smooth and impunctate. Median

segment strongly punctured, except in the centre at the apex; in its middle at the base is a depression about twice as long as it is broad; the base being deeper than the apex, especially in the middle. The base of the propleuræ smooth, the apex obscurely punctured, the mesopleuræ obscurely punctured at the base, where it is broadly black from near the tubercles; the basal half of the sternum is black, the black broadly and roundly projecting at the sides; the furrow on the apex of the mesopleuræ is deep, narrow; the extreme apex is finely punctured on the upper side. Metapleuræ rather strongly punctured, except at the base above, where the punctuation is much finer; the basal depression is deep black; the keel between the coxæ is stout. Legs coloured like the thorax; thickly covered with long, white hair; the apex of the hinder coxæ, of the hinder tibiæ and the hinder tarsi entirely, black; the calcaria pale yellow. Wings hyaline; the base with a faint fulvous tinge; the costa and stigma dark fulvous beneath; the areolet broader than long; the second transverse cubital nervure is curved; the recurrent nervure is received in the apical fourth. Abdomen smooth, except the base of the second segment, which is punctured strongly in the middle; the third is more strongly punctured and striated in the middle; the sides rough; the other segments are smooth; the petiole is broadly depressed in the middle; the second depressed in the punctured part at the base; the second and third segments are depressed across the middle and obliquely at the sides; the third is broadly black at the base; the others black in the middle; the black mark rounded at the apex; the marks on the fifth and sixth segments are larger and broader than on the others.

2. Middle lobe of the mesonotum not raised, nor distinctly separated from the lateral; the median segment

smooth, impunctate, without a distinct depression at the base; the abdominal segments strongly punctured.

EPHIALTES NIGROMACULATUS, *sp. nov.*

*Flavus; capite, thorace abdomineque nigromaculatis; antennis nigris, basi fuscis; trochanteribus posterioribus, basique tibiarum posticarum nigris; tarsis posticis fuscis; alis hyalinis, nervis stigmataque nigris.* ♀.

Long. 13-14; terebra 13 mm.

Scape of the antennæ black; the apex yellow; closely punctured, sparsely covered with long, pale hair; the flagellum blackish, brownish at the base; thickly covered with stiff, microscopic pubescence. Head yellow; the vertex broadly in the centre, and diverging laterally above the ocelli to shortly down the occiput and across to near the edge, and a small mark on the face in the centre below the antennæ, black. Face obscurely punctured, covered with longish, pale hair; the clypeus almost smooth; at its base is a deep, transverse furrow; mandibles broadly black at the apices; the palpi pallid yellow. Mesonotum smooth, shining; a large black mark on each lobe; the apex of the scutellum, the postscutellum, and a curved mark on the apex of the median segment, black; the apical lobe of the propleuræ is for the greater part black; the black mark at the base on the upper side being roundly incised; at the apex transverse; below the middle on the apex of the mesopleuræ is a black mark, transverse at the apex, rounded at the apex. The upper part of the metapleuræ closely and strongly punctured, the lower quite smooth. Wings clear hyaline; the nervures and stigma deep black; the arcolet oblique, above triangular; the recurrent nervure is received in the apical third of the cellule. Legs shining, stout, thickly covered with white hair; the apices of the four posterior trochanters and the

base of the hinder tibiæ black; the hinder tarsi dark fuscous. The basal depression of the petiole smooth; its sides and apex strongly punctured; the other segments are also strongly punctured, except the apical, which have the punctuation much weaker; on the petiole the black line is continuous; on the 2nd-5th segments there is a longer central, and a smaller lateral black mark; on the 6th and 7th there is only a central line; the cerci are black and covered with longish pale hair. The sheaths of the ovipositor are black and thickly covered with fuscous hair.

**B. Black, the four anterior legs yellow.**

EPHIALTIS TINCTIPENNIS, sp. nov.

*Niger; pedibus posterioribus rufo-flavis; alis fere hyalinis, stigmate fusco; antennis fuscis.* ♂.

Long. 19 mm.

Antennæ deep black; the flagellum bare; the scape on the lower side thickly covered with long, pale fuscous hair, and rather strongly punctured. Head deep black; the face and clypeus thickly covered with long, fuscous hair; the face strongly and uniformly punctured, thickly covered with long, pale fuscous hair; the orbits sharply margined, depressed. Clypeus smooth, the apex testaceous; the middle with a large semicircular depression. Mandibles black; the palpi testaceous. Front and vertex smooth, shining, sparsely covered with short, fuscous hair. The pro- and meso-thorax shining, smooth; the median segment strongly uniformly punctured, the punctures running into reticulations on the sides; the apex above with a semicircular smooth space. Scutellum with shallow, widely separated punctures and covered with long, pale fuscous hair; the postscutellum minutely punctured,

shining. Pro- and meso-pleuræ shining, smooth; the apices of both crenulated, the former indistinctly above; the meso- on the lower part at the base is bounded by a sharp, narrow keel which is continued across the sternum; this part is obscurely punctured and has, near the base, a crenulated furrow. The metapleuræ below the keel obscurely punctured and bounded, on the lower side, by a distinct keel. The four anterior legs are entirely fulvous, the hinder pair black, except the apical joint of the trochanters and the extreme base of the femora, which are rufous; the calcaria are pale testaceous. Wings hyaline, but with a slight fulvous tinge; the areolet triangular, the nervures uniting above; the recurrent nervure received in the basal fourth. Abdomen closely and strongly punctured; the basal depressions of the petiole smooth; its apex is more strongly punctured than the second segment.

THERONIA AREOLATA, *sp. nov.*

*Fulva, brunneo-maculata; antennis brunneis; alis fulvo-hyalinis, stigmate fulvo, nervis nigris.* ♀.

Long. 12; terebra 3 mm.

Antennæ as long as the body; the scape brownish, yellowish beneath, the sides with a black line; sparsely punctured and covered with long, pale hairs; the flagellum brownish, darker towards the apex. Head yellowish; the front in the middle and the occiput, except near the eyes, brownish. Face sparsely punctured in the middle, the clypeus smooth; mandibles yellowish, the teeth black; the palpi yellowish, more fulvous towards the apex. Thorax luteous, the mesonotum brownish, the sides and two lines down the middle, yellowish. Scutellum impunctate, thickly covered with long, black hairs; its sides and apex yellow; the depression at the base deep black. Postscutellum smooth, almost bare; at the base deeply bifoveate;

the lateral keels oblique, sharp; the central partition triangular. Median segment shining, impunctate; the central area pyriform; the keel bounding it broad and flat at the base, sharp at the apex, where it is deeply hollowed; the lateral basal areae are large, wider than long, shallow; the apical deeper, shorter and narrowed obliquely on the inner side, the bounding keel being curved; from its apex two stout keels run obliquely, forming a somewhat triangular area. Pro- and meso-pleuræ smooth, shining; the metapleuræ also smooth; the keel below the spiracles sharp and narrow. Legs stout; the hinder coxæ and femora suffused with fulvous; the hinder tarsi rufous. Areolet oblique; the recurrent nervure is received in the apical fourth, about the distance of the length of its top. Abdomen brownish; the base and apex of the petiole broadly; the apices of the second and third segments broadly, and of the fourth and fifth narrowly, yellow; the petiole sharply carinated laterally to shortly beyond the middle; the base and the sides depressed obliquely beyond the middle.

THERONIA NIGROBALTEATA, *sp. nov.*

*Fulva, nigro-maculata; alis hyalinis, apice fumatis; stigmate testaceo.* ♀.

Long. 10; terebra 3 mm.

Comes near to *T. areolata*, but is smaller; has the thorax and abdomen marked with black, and otherwise may be known by the central area on the base of the median segment being square and not hollowed. Antennæ stout, brownish, darker towards the apex, the scape paler. Face punctured all over; fulvous, yellowish at the top; the clypeus impunctate; the mandibular teeth black. Mesonotum dark brown; the sides and two lines down the middle yellow; the scutellar depression, and a narrow

line at the tegulae, black. Scutellum fulvous, yellow at the sides, the apex broadly black; the postscutellum yellow; its foveæ large. The base of the median segment black, the black narrow in the centre; at the sides broader and continued to the apex of the spiracles; the basal central area is almost square, flat; the single lateral one is longer than it is broad, narrowed at the apex; the keels bordering the central area are indistinct, the lateral more strongly defined. Pro- and meso-pleuræ smooth, shining, the apex of the propleuræ narrowly, the base of the mesonotum, a longitudinal line immediately under the tubercles, an oblique one extending from above the middle to near the apex, becoming wider as it does so, and ending forwards at right angles to the base of the coxae, black. The four anterior legs are yellow, the femora and the middle tibiæ and tarsi tinged with fulvous; the hinder coxae are broadly black at the base below and at the sides; the apical joint of the trochanters, the femora broadly in the middle, and the tibiæ, rufous; the tarsi dark fuscous. Wings hyaline; the apex infuscated; the areolet oblique, the nervures united at the top; the recurrent nervure received shortly beyond the middle. Abdomen rufous; the apices of the segments yellow; the petiole, the second and third segments black in the middle; the others broadly black at the apex; the depression at the base of the petiole shallow; the furrow down the apex deep; in the centre of the second segment at the base is a narrow, deep, longitudinal furrow; the oblique depression at the sides is deep.

THERONIA GRACILIS, *sp. nov.*

Long. 9; terebra 3 mm.

A smaller and more slender species than *T. nigrobalteata*, with which it agrees in having the abdominal

segments banded with black; but it differs in having the central area on the base of the median segment open at the apex; the lateral area shorter and broader at the apex; the petiole longer compared with the second segment; the wings not infuscated at the apex; the areolet slightly larger and receiving the recurrent nervure in the middle.

Antennæ brownish, darker towards the apex; the scape yellowish beneath, and thickly covered with long, fuscous hair; the clypeus smooth; the apex slightly waved; mandibular teeth black. Mesonotum brownish; the sides and two lines down the middle, yellow; the scutellar depression and a semicircular mark at its base, and the sides at the hinder wings, black. Scutellum not much raised; the sides above keeled; the base yellow, rufous in the middle; the apex black. Postscutellum rounded and narrowed at the base; the bordering keels stout, oblique. Median segment black at the base; the lateral areæ entirely black; the spiracular areæ black in front of the spiracles. The apex of the propleuræ, the base of the mesopleuræ on the lower side, a band under the tubercles, an oblique one across the middle reaching to the apex of the middle coxæ, and a mark in front of it over the coxæ, black. The middle area on the base of the mesonotum with straight sides and open at the apex; the apex straight, oblique. The four anterior femora are slightly, the hinder almost entirely, fulvous; the hinder coxæ at the base on the outer side black, the hinder tarsi dark fuscous. Costa and stigma dark rufo-testaceous; the nervures black; the areolet oblique, receiving the recurrent nervure, if anything, before the middle. Abdomen: the sides of the petiole at the middle, a broad band shortly beyond the middle, a narrower band on the second, third, fourth and fifth segments in the middle, and the sixth and seventh segments at the base, black; the furrow on the petiole is wide and

deep, as are also the depressions on the sides of the second; the furrow at its apex wide and deep; the central furrow at the base deep.

### PIMPLA.

#### A. *Entirely ferruginous, wings fulvous.*

##### PIMPLA OLYNTHIA, *sp. nov.*

*Ferruginea; flagello antennarum nigro; alis rufo-flavis,  
apice fumatis.* ♀.

Long. 18; terebra 16 mm.

In coloration agrees with *P. nigricornis* Sm. (*Proc. Linn. Soc.*, IV., 65), but that is smaller and has the mesonotum punctured.

Uniformly rufo-ferruginous; the face, palpi, orbits and apices of the four anterior coxae, pale yellow. Scape of antennae rufo-ferruginous; the base of the flagellum dark rufous on the under side. The orbits and base of the mandibles and palpi pale yellow; the apex of the mandibles black. The thorax is more elongated and narrowed behind the tegulae than usual. The coxae and femora are covered with moderately long, white, the tibiae and tarsi very thickly with shorter, more fulvous coloured, hairs; the claws are black. Wings yellowish hyaline; the apices of both with oblique smoky clouds, the costa, stigma and nervures yellowish; the areolet oblique; the recurrent nervure is received in the apical fourth of the cellule. Petiole smooth, impunctate the base oblique, the sides distinctly margined; the keel being continued to the centre of the apical portion, on the outer side of the middle; the space between being depressed; the second, third, and fourth segments are closely punctured down the middle, and on the transverse depressions; the fifth is broadly depressed at the base and more strongly and closely punctured; the sixth is closely and finely punctured; the apical almost

impunctate; the ventral segments, except the apical one, sulphur-yellow. Sheaths of the ovipositor covered thickly with pale, somewhat rufous, hair.

B. Head and fore-legs ferruginous; the abdomen and hind-legs black; wings yellowish hyaline.

PIMPLA ARIANA, sp. nov.

*Nigra; capite, scapo antennarum, thorace pedibusque anterioribus ferrugineis; alis flavo-hyalinis, apice fuscis.* ♀.

Long. 17; terebra 13 mm.

Antennæ black; the scape ferruginous, thickly covered with longish, black hair; the flagellum covered closely with a minute, almost microscopic, pile. Face and clypeus yellowish, suffused under the antennæ with ferruginous; smooth, impunctate; sparsely covered with long, fuscous hair; the apex of the clypeus obliquely depressed. Mandibles yellowish, the teeth black; the base shagreened; the apex smooth and shining; the palpi rufo-testaceous; thickly covered with longish, pale hair. Thorax shining, impunctate; the pleuræ sparsely, the median segment more thickly, covered with long, white hair. Legs thickly covered with long, white hair; the four anterior entirely rufo-ferruginous, except for the claws; the posterior black, the apical joints of the tarsi rufous beneath. Wings flavo-hyaline, obliquely infuscated from near the discoidal nervure across the areolet to the apex of the radial nervure, which it only touches at the apex. The costa and stigma rufo-ferruginous; the areolet oblique; the transverse cubital nervures almost unite at the top; the recurrent nervure is received quite near to the second transverse cubital. Abdomen black; the ventral surface, except at the apex, pale dirty testaceous; the petiole smooth; its apex broadly raised, the base of the raised

part depressed, with the sides raised ; the other segments very coarsely and closely punctured ; the second smooth at the base and the sides at the apex behind the depression, except for a row of punctures in the middle, the row bifurcating at the apex ; all the segments, except the last, are equally widely depressed shortly beyond the middle ; the apical segments are smooth and quite without punctures. The sheaths of the ovipositor densely and shortly pilose.

**C. Lutcons species with black marks or lines on the thorax and abdomen.**

- I. The abdomen with black transverse lines, besides the black marks.
  - a. The mesonotum for the greater part black, with two oblique yellow spots in the centre of the black part : the black marks on the third and fifth abdominal segments curved. *P. curvimaculata.*
  - b. The mesonotum luteous, with black marks ; the abdominal lines straight.

The marks on the mesonotum small and forming almost a continuous line ; wings fulvous, the apex not distinctly smoky, the stigma and nervures fuscous, the depression on the petiole indistinct.

*P. appendicularis.*

The mesonotum in front with three large, black marks ; wings hyaline, the apex distinctly smoky ; the stigma and nervures black. *P. apicipennis.*

**PIMPLA CURVIMACULATA, sp. nov.**

Long. 15 mm. ♂.

The flagellum of antennæ black, brownish beneath ; the scape yellow, black above ; covered with longish, fulvous hair. Head yellow ; the ocellar region black ; the occiput above with a large, curved, fulvous mark ; the mandibular teeth black, piceous at the base ; the face strongly punctured, slightly dilated in the middle ; sparsely

covered with short, white hair; the basal half of the clypeus closely punctured; the apex obliquely depressed, smooth; the front and vertex impunctate, smooth, shining. Thorax luteous; the mesonotum from shortly before the base of the tegulae to the base of the scutellum black; in the middle are two oblique yellow marks, which are triangular at the base, rounded at the apex; at the base the black is slightly and roundly dilated at the sides. Scutellum pyramidal, the apex oblique; the leaf-like expansions on the sides large, thin. The keels bordering the lateral areae stout; the areae for the greater part black; the middle at the base distinctly depressed; across the middle of the segment is a curved keel, which is united at the sides to the keels of the basal areae. Pleurae very smooth, shining; the sternum punctured; at the apex of the mesosternum is a large leaf-like expansion, triangularly narrowed towards the apex, which, in the middle, is slightly and roundly incised. The middle keel on the metapleuræ well defined. Legs stout; the tarsal claws and the hinder knees black. Arolet small; the transverse cubital nervures united at the top, almost appendiculated. On the petiole there is a broad transverse mark, at the end of the depression; on the third segment is a fusco-black mark; the apex narrowed; the base curved on either side and ending on the lower side in a sharp point; on the fourth is a small black dot on either side; on the fifth is a similar mark to that on the third, but smaller; there is an elongated mark on the sides of the sixth; on the penultimate is a large, transverse mark. The petiole is impunctate; the base broadly depressed, the sides of the depression sharply carinate; on the apex in the middle, reaching to the transverse line is a conical depression; the other segments are closely and rather strongly punctured; the transverse depressions longitudinally striated.

*PIMPLA APPENDICULARIS, sp. nov.*

*Flava; maculis parvis mesonoti, apiceque tibiarum posticarum nigris; alis fulvo-hyalinis, stigmate rufo-fusco, nervis fuscis.* ♀.

Long. 15; terebra 5 mm.

Antennæ longer than the body, black; the scape yellow, the base of the flagellum brownish beneath at the base. Head yellow, except the ocellar region, which is black. Face closely punctured; the clypeus smooth on the obliquely depressed apex, the base obscurely punctured. Mesonotum closely punctured at the base; the raised central part at the base bordered by distinct furrows; at the base of the tegulæ there is a mark, broader than long, followed in the middle by a narrower and longer one, the whole forming an almost continuous line. The basal depression of the scutellum black; the keel to the middle large and leaf-like, on the apical half much smaller; the scutellum sparsely covered with long, black hair. Median segment smooth; the base between the keels narrowly black; the black continued along the inner side of the lateral keel, becoming gradually wider to the base behind, and slightly extending beyond the outer side of the keel; the middle keel broadly curved and united to the apex of the segment by a lateral one. Pleuræ smooth, shining. Legs coloured like the thorax; the basal joint of the hinder trochanters on the under side, a large mark on the under side of the hinder femora in the middle, the apex of the tibiæ and the apical two joints of the hinder tarsi, black. Wings with a distinct fulvous-smoky tinge; the costa rufo-testaceous; the stigma rufo-fuscous; the nervures fuscous. Arcolet shortly, but distinctly, appendiculated, triangular; the recurrent nervure received in the apical third. The petiole broadly, but not deeply depressed at the base; its sides stoutly

carinate. The keels continued down the apical part to the raised middle of the apex ; the part between being depressed, broadly at the base, narrowly at the apex ; the second segment black at the base, the black bifurcating to the furrow at the sides ; there is a broad, continuous, transverse line on the centre of the third, a line about three times as long as it is broad on the sides of the fourth, a continuous line on the fifth, a short mark in the centre on either side of the sixth, and an almost complete one across the seventh segment, black ; the sheaths of the ovipositor black.

PIMPLA APICIPENNIS, *sp. nov.*

*Fulva ; thorace abdomineque late nigromaculatis ; alis hyalinis, apice fumatis, stigmate nervisque nigris.* ♀.

Long. 13; terebra 2 mm.

Antennæ as long as the body, the scape yellow, largely marked with black above ; sparsely covered with white hair ; the flagellum brownish at the base. Face closely punctured, thickly covered with short, pale hair ; the clypeus not quite so strongly punctured ; its depressed apex punctured like the base. The mandibles coloured like the face, with the teeth black ; the palpi similarly coloured and covered with long, white hair. The ocelli are in a black patch, the black extending beyond them all round. The middle lobe of the mesonotum bearing large punctures ; between the tegulæ are three large, black, marks ; the central almost square, the lateral dilated in the middle on the outer side into a point half its length. Scutellum pyramidal ; more obliquely depressed at the base than at the apex, where the slope is longer ; thickly covered with long, pale hair ; the sides stoutly keeled, the keels not leaf-like. On the base of the median segment is a black band, which extends to the lateral basal keels ;

in the centre at the base is a distinct fovea, slightly longer than it is wide, and triangular at the apex; the keels in the centre at the base are oblique; the apical prolongation slightly oblique and not so straight, and united to a keel at the end; the apex has an oblique slope and is stoutly keeled all round. All the pleuræ smooth and shining; below the tegulæ largely tuberculate; the centre of the mesopleuræ at the base roundly projecting; in the middle at the apex is a sharp, slightly oblique, short furrow; the metapleuræ at the top roundly projecting; the base behind the spiracles obscurely punctured; the central keel narrow, but distinct. Legs stout; the base of the hinder tibiæ, all the claws and the apices of the four hinder tarsi, black. Wings clear hyaline, except at the apices where there is a distinct, narrow, smoky cloud; the areolet small, triangular, distinctly appendiculate at the top; the recurrent nervure is received in the apical third. Petiole at the base smooth and shining; the apex obscurely punctured; the apical part at the base with a shallow depression in the middle, rounded at the apex; the oblique furrow at its apex not very clearly defined, obscurely striolate, the second and following segments coarsely punctured, running into obscure striae on the apices; the transverse furrows striolated. Shortly beyond the middle of the petiole is an interrupted black line, narrowed on the inner side; the line on the second is broad and entire; on the third there is none; on the fourth is a broad line, interrupted in the middle; on the sixth the black line is complete, and slightly narrowed in the middle at the apex; the sheaths of the ovipositor black.

II. *Abdomen with black marks, and with only a black transverse line on the penultimate.*

a. Abdomen with the third and following segments punctured.

To this section belongs *P. dedator* Fab.

The two new species here described may be separated as follows :—

The marks on the mesonotum extending to the base of the scutellum, the median segment distinctly areolated, without two black marks at the base ; the wings smoky at the apex. *P. lepcha.*

The marks on the mesonotum only found on the base ; the median segment not distinctly areolated, only the basal areae being defined ; and bearing two black marks at the base ; the wings not smoky at the apex. *P. ceylonica.*

PIMPLA LEPCHA, sp. nov.

Long. 15 : terebra 2 mm.

Very similar to *P. khasiana* ; but may be known from it by the marks on the mesonotum being larger, by the abdomen being distinctly punctured, by the petiole being shorter compared with the second segment and having in its centre, as has also the second segment, a distinct depression ; there are no black marks on the second segment ; the basal central area on the median segment is distinctly wider than its length, and distinctly narrowed from the middle ; and the apical lateral area is narrower compared with the basal. The scape of the antennæ yellow, black above ; the flagellum black, brownish at the base. Head lemon-yellow ; the vertex and occiput black, the black on the vertex narrowed between the eyes. Face strongly punctured, covered with longish, white hair ; its sides near the eyes raised into a blunt, slightly curved keel. The apex of the clypeus transverse, slightly bare ; mandibles yellow, the teeth black ; the palpi yellow, covered with glistening white hair. Mesonotum shining, impunctate ; in the

middle is a black mark, extending to the apex, much narrowed in the middle, where it extends from side to side and is united to a mark on the sides, which is broad at the base, becoming much narrowed at the base. Scutellum pyramidal, the sides stoutly keeled; the apex with a more gradual slope than the base, smooth, impunctate, sparsely covered with pale hair; the sides of the postscutellum carinate laterally; the depression at the base shorter and more abrupt than on the apex. Metanotum shining; the middle area at the base, clearly wider than it is long; the basal lateral area on the outer side almost twice the width of the inner side; the apical area shorter than it, slightly wider on the inner, distinctly narrower on the outer side than the basal one; the central keel larger than the others, especially on the outer side. Pleuræ smooth and impunctate; below the tegulæ there is a projection, or tubercle; immediately above the middle of the mesopleuræ there is a stout, slightly oblique projection, which is flatter towards the apex. Wings hyaline; the stigma and nervures black; the apex of the fore-wings distinctly, of the posterior faintly, infuscated; the areolet triangular, very slightly appendiculated at the top; the recurrent nervure is received very shortly beyond the middle. Legs stout, coloured like the thorax; a mark, longer than broad, and narrowed towards the apex on the hinder femora between the middle and the apex above; the base of the hinder tibiæ, the extreme base of the hinder tarsi and the apical two joints of the hinder tarsi, black. On the petiole, at the end of the keels, are two obscure dots; near the base of the third are two marks, rounded and dilated on the inner side at the base; on the fourth and fifth segments are somewhat large marks, broader than they are long; rounded on the outer side, transverse on the inner; the penultimate broadly black at the base; the

base slightly and roundly incised on the apex. The keels on the sides of the petiole are stout and reach to the middle, where there is an elongate shallow fovea followed by a shorter one; the transverse furrows on the second and fifth segments are distinct, and closely longitudinally striated; the third segment is slightly, the fourth and fifth segment more strongly, punctured; on the last segment, at the base of the oblique furrows, is a depression which is longer than it is broad.

*PIMPLA CEYLONICA, sp. nov.*

Long. 10 mm.

*Hab.* Trincomali, Ceylon (*Col. Verbury*).

Scape of antennæ yellow, black above; the flagellum rufous, darker above. The ocellar region black; the black extending behind to the end of the vertex and to an equal distance in the middle beyond them at the apex. Face closely punctured, covered with short, silvery pubescence; the clypeus bluntly rounded at the apex; the mandibular teeth black. Thorax shining, impunctate; on the base of the mesonotum are three black marks, the lateral large, longer than it is broad; its sides at the base on the outer side obliquely truncated; the central mark smaller, its base slightly curved inwardly, the apex triangular. Scutellum rather flat; sparsely covered with pale hair, smooth; the sides narrowly keeled; the sides of the post-scutellum indistinctly keeled. Median segment very smooth; the central area fully twice as broad as long; the lateral areæ are slightly longer and rounded at the apex, wider on the outer than on the inner side, the black marks being inside of them. Legs stout; the hinder femora distinctly rufo-fulvous; the base of the hinder tibiae black. Wings clear hyaline; the stigma and nervures black; the former testaceous at the base; the areolet

distinctly appendiculated, triangular ; the apical transverse cubital nervure curved ; the recurrent nervure is received shortly beyond the middle. Petiole shining, impunctate, the base depressed ; the apex of the depression rounded ; its sides narrowly keeled ; the keels obliquely continued to shortly beyond the middle ; the second segment is broadly depressed laterally at the base ; the transverse furrow wide. The third, fourth, and fifth segments are closely and rather strongly punctured ; the sixth obscurely punctured ; the apical smooth ; the transverse furrows are distinct, moderately wide and deep, and obscurely crenulated. On either side of the petiole in the middle are two irregular marks, wider than they are long : there are no marks on the second ; there are two large marks on the base of the third ; on the base of the fourth are two small marks ; on the base of the fifth two large marks broader than they are long ; on the base of the penultimate are two larger marks.

*b. Abdomen impunctate.*

The central area on the median segment square, the basal two segments each with two black marks. *P. khasiana*.

The central area on the median segment wider than it is long, wider at the base than at the apex ; the basal two segments immaculate. *P. indubia*.

PIMPLA INDUBIA, sp. nov.

Long. 15 mm.

Similar in coloration to *P. lepcha*, having only 6 marks on the abdomen ; but that differs in having the middle segments of the abdomen strongly and distinctly punctured, and in having the middle basal area of the median segment distinctly narrowed from the middle to the apex, whereas in the present species it becomes gradually

widened from the base to the apex, the apical bounding keel, too, having a distinct curve ; the scutellum is more sharply pyramidal and, looked at from behind, is seen to be distinctly triangular ; the lateral marks on the mesonotum do not reach to the apex. *P. khasiana* comes near to it also, but is longer, has more marks on the abdomen, has the central basal mark on the median segment, as long as broad, whereas in *P. indubia* it is distinctly wider than it is long, and the alar nervures from the stigma are distinctly fuscous.

Antennæ longer than the body, black ; the extreme apex rufous ; the basal three joints yellow beneath. Head yellow ; the occiput except at the sides, the ocellar region and the front in the middle, black ; the black on the front gradually narrowed to a point at the apex, dilated at the base. The face closely punctured ; the sides bluntly keeled to near the apex, which is only obscurely punctured ; the clypeus smooth ; the tips of the mandibles black. In the middle of the mesonotum is a cup-shaped black mark, the narrow basal part being as long as the dilated apical, which, at the base, is roundly incised ; the lateral marks as long and as wide as the dilated part of the central ; they are narrowed gradually to a point at the apex ; the base on the inner side transverse ; on the outer, obliquely truncated. Scutellum pyramidal, smooth ; looked at from behind it is somewhat triangular, with the sides straight, smooth, impunctate, and covered rather thickly with long, fuscous hair ; the keel on the lower side leaf-like, large. The keel on the sides of the postscutellum narrow. The central area and the base of the median segment distinctly broader than it is long ; the lateral keels straight, slightly, but distinctly, diverging towards the apex ; the apical keel slightly and gradually curved ; the basal lateral keel large, not much wider on the

outer side ; the apical oblique, considerably widened from the inner to the outer side. The mesopleural tubercles large, sharply projecting ; the middle below them also projecting, but not so acutely. Wings hyaline, the areolet triangular above ; the recurrent nervure is received in the middle. Legs coloured like the thorax ; the femora with a more fulvous tinge ; a mark on the upper side of the hinder femora near the apex, the extreme base of the hinder tibiæ, their apex narrowly, all the claws and the apical joint of the hinder tarsi, black. Abdomen shining, impunctate ; a black mark on either side of the second, third and fourth segments, those on the second slightly smaller, more irregular and not so square, and a transverse band, narrowed in the middle at the apex, black ; the sheaths of the ovipositor black.

PIMPLA KHASIANA, *sp. nov.*

*Fulva ; thorace late 3-maculato, abdomine 12-maculato, lineaque apicis nigromaculata ; alis hyalinis, apice fumatis ; nervis stigmataque nigris.* ♀.

Long. 16 ; terebra 2 mm.

Antennæ black ; the scape yellowish beneath ; the base of the flagellum brownish. Head with the face thickly covered with white hair ; the ocellar region and a wider mark, rounded above, in the centre of the front, black. Face coarsely punctured ; the sides stoutly keeled near the eyes ; the clypeus obscurely punctured ; the depressed apex almost smooth. Mandibles obscurely punctured at the base, covered with white, intermixed with fulvous, hair ; the teeth black, piceous behind ; the palpi fulvous, covered with short hair. Mesonotum shining, impunctate ; in the middle is a large, black mark, extending from near the base to the apex ; its apex almost transverse, but slightly incised in the middle ; beyond its middle the

mark becomes narrowed gradually but distinctly, then becomes dilated into a triangle, which at its apex, is slightly wider than the widest part of the basal portion; the lateral marks are slightly wider than the central; they are as long as the basal part of the central mark; slightly dilated in the middle on the outer side, and oblique at the apex. Scutellum pyramidal; the top with a short, transverse keel-like projection; the lateral keels large, leaf-like and of nearly equal height throughout. The postcutellum with the sides bluntly keeled. Median segment smooth; the central basal area almost square; from its centre and apex two stout keels run to the sides where they unite with a longitudinal keel, thus forming two lateral areæ on each side. Pleuræ very smooth and shining; on the metapleuræ is a curved keel in the middle. Legs stout, thickly covered with fulvous hair; on the apical third of the hind femora, on the inner side at the top, is a black mark, which is dilated below on the lower side; the base of the hinder tibiæ, the extreme base of the tarsi and their apical joint, black; the apices of the four anterior claws are black. Wings hyaline, the apices of both smoky; the nervures and stigma black; the areolet triangular, slightly appendiculated; the recurrent nervure is received almost in the middle. The first and second segments of the abdomen are smooth and shining; the keel on the sides of the petiole extends to the middle—to the base of the black dot; the transverse, curved furrow on the second segment is longitudinally striated; those on the other segments are also striated, but not so distinctly. The black marks on the petiole small, on the second segment slightly larger and dilated in the middle at the apex; on the third and fourth larger, on the fifth and sixth still larger, broader, being distinctly broader than they are long; on the sixth small and may be absent; the sixth has a wide,

transverse band, incised in the middle at the apex ; the oblique furrows on the last segment, narrow, deep and distinct.

The following species is probably related to the foregoing group. The colour of the abdomen and legs is doubtful, as the ferruginous tint of the abdomen and legs may be caused by chemical discoloration ; but structurally it is distinct from any of the yellow species. The scutellum is more distinctly keeled at the apex than in the yellow species, the apical and the lateral keels being continuous.

PIMPLA HONORATA, *sp. nov.*

*Nigra; thorace sordide olivaceo; abdomine rufo, nigro-balteato; pedibus rufis; alis hyalinis, stigmate costaque nigris.* ♀.

Long. 8 ; terebra 1 mm.

Antennæ nearly as long as the body, stout, not tapering much towards the apex, closely covered with short pubescence, dull rufous, darker towards the apex. Head smooth, shining, the face thickly covered with short, white hair; the clypeal foveæ deep, large; the mandibles black; the palpi pale dirty yellow. Thorax smooth and shining ; the mesonotum and scutellum dull olive; the former with three large, almost united, marks between the tegulae, keeled down the sides and round the apex; the scutellum, rounded from the base to the apex, not much raised above the mesonotum, but its apex considerably so above the postscutellum, which is depressed laterally at the base; the lateral depressions large. Median segment with a gradually rounded slope, impunctate, glabrous; at its base are two large areæ, one on either side; they are broader than they are long, and triangularly narrowed at the apex; from its centre a curved keel runs

to the apex of the segment, its apical part being thicker than the basal; before its middle, on the inner side, and joined to it, is a short, oblique keel. Pleuræ smooth and shining, glabrous; the metapleuræ with a curved keel above and below; the tubercles are distinct. Legs stout; the anterior olive-coloured, as are also the middle coxæ; the hinder knees are black, the tarsi are infuscated. Wings hyaline, the stigma blackish, the nervures paler; the areolet is shortly appendiculated; the recurrent nervure is received in the middle. The first, third, and fifth segments are broadly marked with black in or near the middle, the mark on the fifth being interrupted; the base of the petiole largely depressed; the inner side of the depression carinate, the keels being continued into the apical part to near the end of the segment; on the apical third is a transverse row of deep punctures; the second to fifth segments are closely punctured; the transverse depressions are longitudinally striated.

D. *Black, the abdomen brownish-testaceous; the legs yellowish and fulvous.*

PIMPLA BICARINATA, *sp. nov.*

*Nigra; abdomine oreque brunneis; pedibus pallide flavis, femoribus posticis fulvis; alis hyalinis, nervis stigmatisque nigris.* ♀.

Long. 10; terebra 4 mm.

Antennæ black, the scape thickly covered with long, white hair. The face is shining, bluntly carinate in the middle (but not at the top and bottom), sparsely punctured and covered with longish fuscous hair. Clypeus, labrum and mandibles brownish, shining; the mandibular teeth black; the palpi pale yellow; the front and vertex shining, impunctate; the former not much depressed.

Thorax shining, impunctate; the mesonotum thickly covered with long white hair; the scutellum with a few shallow punctures; the postscutellum closely punctured; the median segment, except in the middle, strongly and uniformly punctured; the smooth, central space bordered by straight distinct keels which diverge slightly towards the apex. Pro- and meso-pleuræ smooth, shining, sparsely covered with longish, pale hair; the apex of the meso-pleuræ depressed; deepest at the extreme apex, which is crenulated on the lower part; the basal depression on the metapleuræ deep, not very broad; the part below the curved keel and the base entirely smooth; the upper part strongly punctured. All the coxæ and trochanters are yellow; the hinder femora, tibiæ and tarsi fulvous. Abdomen brownish; the petiole above in the middle to near the apex, and the apices of the second to fifth segments narrowly, black; the basal depression of the petiole, the sides near the middle, a broad, oblique band on either side at the apex, and the apex itself, smooth and impunctate; the other segments are strongly and closely punctured, the punctures becoming weaker towards the apex; the transverse depressions on the third and fourth segments are wide and deep. The basal ventral segment black; the others fulvo-testaceous. The sheaths of the ovipositor very hairy. Wings clear hyaline; the stigma and nervures black; the areolet oblique, elongate, shortly appendiculate; the first transverse cubital nervure oblique, straight, the second curved; the recurrent nervure received in front of it, almost touching it.

*E. Black; the abdomen banded with white; the four anterior legs yellow.*

PIMPLA CARINIFRONS, *sp. nov.*

*Nigra; scutello, pedibus anterioribus basique tibiarum*

*posticarum late flavis; abdominis segmentis albolineatis;*  
*alis fusco-hyalinis, nervis stigmataque nigris.* ♀.

Long. 15; terebra 3 mm.

Antennæ black; the scape covered with longish, pale hair; the flagellum densely with short, stiff, black hair. Head black, the palpi lemon-yellow; the face strongly punctured; the lower part of the face bluntly carinate, the raised part smooth in the centre; sparsely covered with soft, white hair; the base of the clypeus strongly punctured; the rest of it depressed, smooth. Front broadly, and rather deeply, depressed; the apex smooth and impunctate; the upper part obscurely shagreened; stoutly keeled down the centre; the inner orbits distinctly margined. The mandibles strongly punctured at the base. Thorax black; a large, yellow mark on the scutellum, rounded at the base, narrowed slightly towards the apex, which is slightly roundly incised. Mesonotum minutely punctured, thickly covered with short, fuscous hair. The basal slope of the scutellum has large, scattered, punctures; the apical slope is oblique and is strongly rugosely punctured. The base of the postscutellum is oblique; the centre is shining, obscurely striated; the depression at its side wide and deep, the bottom obscurely crenulated. Median segment broadly raised in the middle; the base smooth and shining in the middle; the centre beyond this strongly striated, the sides more closely and finely striated. Propleuræ strongly shagreened, towards the apex finely striated; the base of the mesopleuræ sharply keeled; behind this keel it is largely and obliquely raised; closely punctured, the top of the raised part at the base furrowed; the basal half behind this is punctured, but not strongly; the upper part at the apex smooth, the lower finely closely longitudinally striated; behind this it is strongly crenulated, the apex itself being smooth behind the

crenulation. Metapleuræ closely, longitudinally striated, the striæ on the apex stronger than on the base. The fore legs are bright lemon-yellow, except at the base of the coxæ; the middle lemon-yellow, except the coxæ and the base of the trochanters; the hinder legs black, except the basal half. Wings hyaline, the basal half suffused with fulvous; the stigma and nervures black. The base of the petiole is strongly punctured; the sides strongly aciculated; the other segments are closely and uniformly punctured; on the under side, in the middle at the base, the petiole has two straight, slightly diverging keels; its apex is finely transversely striated.

PIMPLA FLAVIPALPIS, *sp. nov.*

*Nigra; linea pronoti, scutello, metanoto abdomineque albomaculatis; pedibus rufis, coxis anterioribus albis, nigromaculatis, coxis posticis nigris, albomaculatis; alis hyalinis, stigmate nigro. ♂ et ♀.*

Long. 7-11; terebra 2 mm.

Antennæ slender, black; the scape closely punctured, yellow beneath. Head shining; the front hollowed, shining, the middle bare, the sides bearing a short, white pubescence; the lower ocellus bordered with an irregularly crenulated furrow, from which a narrow, smooth one runs down to the antennæ. Face strongly and closely punctured, thickly covered with white hair; the face in the middle shining, smooth, slightly projecting. Mandibles at the base closely rugose; the palpi yellow. Thorax black; a narrow line on the pronotum, a mark on the scutellum and postscutellum and two elongated tubercle-like marks on the sides of the median segment, extending from the middle to the apex, and the tubercles, yellow. Mesonotum smooth and shining; the scutellum covered

with short, white hair; the middle punctured, but not strongly; the base of the scutellum has a wide oblique slope. Median segment closely transversely striated, the base and apex with the striations finer and closer than on the middle. Propleuræ smooth and shining in the middle; the base strongly aciculated; the apex coarsely longitudinally striated; the striæ much longer in the middle, extending triangularly backwards to the middle. Mesopleuræ closely punctured; running into striations near the tubercles; the apex coarsely crenulated. Metapleuræ coarsely punctured above; the apex coarsely striated; the part below the furrow closely and somewhat obliquely striated. The four anterior coxæ are black; largely yellow at the sides and in front; the hinder coxæ black, except for an oval mark in the middle behind; the trochanters black at the base; the anterior yellowish at the apex; the anterior femora, tibiæ and tarsi fulvous, the tarsi with a more yellowish hue; the middle femora, tibiæ and tarsi rufous; the hinder femora rufous, black at the apex; the hinder tibiæ and tarsi black; the tibiæ with a whitish-yellow band near the base. Wings hyaline; the base with a slight fuscous tinge; the stigma and nervures black; the areolet oblique, slightly appendiculated; the recurrent nervure is received in its apical third. Abdomen closely punctured, very slightly only on the base of the petiole and on the apical segment; on the apices of the first, second and third segments are yellow marks; that on the first triangular, on the second and third longer, and narrowed on the inner side, the fourth has a complete band, widened at the sides, the others have large marks laterally, all narrowed to a point on the inner side; the ventral segments are broadly banded with pale yellow.

The ♂ has the four anterior legs of a more yellowish hue, the coxæ being entirely yellow and without any

black; the white marks on the abdominal segments are larger laterally and continued across the sides.

In size it is variable. One ♀ is only 7 mm. in length. The males also vary in length. The extent of the white on the abdomen varies; in some females there is only white on the sides; in others the white is continued right across, especially on the middle segments.

**G.** *Body black, the legs rufous.*

PIMPLA POESIA, *sp. nov.*

*Nigra; tegulis scutelloque flavis; pedibus rufis; coxis, trochanteribus tarsisque posticis nigris; alis fulvo-hyalinis, stigmate fusco-fulvis.* ♀.

Long. 16; terebra 5 mm.

Scape of antennæ distinctly, but not closely, punctured, sparsely covered with long, white hair; the flagellum almost bare. Face strongly and uniformly punctured. The basal part of the clypeus with scattered punctures except at its apex; the apical part of the clypeus smooth, depressed, the apex slightly shagreened; the hairs on it are sparse and longer than those on the face. Mandibles sparsely punctured and covered with dark hairs. The basal joints of the palpi blackish; the apical dark testaceous. Vertex broadly, but not deeply, depressed; the sides minutely punctured; the centre with a narrow, shallow furrow, and closely and finely transversely striated. Mesonotum strongly and uniformly punctured. Scutellum yellow, except round the edges; sparsely covered with large, not very deep, punctures, which are more widely separated in the middle; the depressed apex almost rugosely punctured; the postscutellum not so closely nor so strongly punctured as the apex of the scutellum.

Median segment transversely rugosely punctured; much more strongly at the base than at the apex; the centre at the base bears a slightly raised, bordered fovea, about three times as long as broad and rounded at the apex. The base of the propleuræ raised in the middle, finely rugose at the base, running into fine striations. Mesopleuræ strongly punctured, sparsely covered with a dark, microscopic pile; the lower two-thirds of the base is obliquely depressed, this depression having at the apex a clearly defined, curved border; the apex very smooth and shining, and having in front a stoutly crenulated border. The basal part of the metapleuræ closely, the apical rugosely punctured, and running into reticulations; the depression at the top behind the spiracles rugosely punctured at the apex; the apex shining, smooth, except for some stout keels near the middle. All the coxæ and trochanters are black; the hinder tarsi are black; their basal joint on the under side thickly covered with stiff, longish, dark fulvous pubescence. Wings fulvo-hyaline, the fulvous tinge not so conspicuous at the apex; the stigma fulvo-testaceous; the nervures blackish; the cubital nervure at the base and the first transverse cubital nervure pale fuscous; the areolet narrowed at the top, oblique; the transverse cubital nervures are almost united at the top; the recurrent nervure is received in the apical third. The apices of the abdominal segments are narrowly obscure testaceous; the depression on the petiole is smooth and shining; the sides coarsely and closely punctured; the middle with the punctures slightly smaller and more widely separated; the extreme apex smooth; the second to fifth segments closely and strongly punctured, but the punctuation becomes gradually weaker; the sixth segment aciculated; the apical smooth. The tegulæ are pale dirty testaceous in front, black behind.

*PIMPLA HIMALAYENSIS, sp. nov.*

*Nigra; pedibus flavis; coxis femoribusque posticis rufis; tibiis posticis nigris, medio late albis; tarsis posticis fuscis; alis hyalinis, stigmate nervisque nigris.* ♂.

Long. 12 mm.

Head shining, smooth; the front roundly and broadly projecting in the middle, at the top bearing some rather large punctures; the sides and bottom almost impunctate; sparsely covered with fuscous hair; short above, much longer below; the base of the clypeus is minutely punctured; the palpi pale yellow; mandibles shining, smooth, black. Front and vertex shining, impunctate; the depression on the front is deep, and does not extend backwards to the ocelli. The upper part of the thorax thickly covered with fuscous hair; the hair on the scutellum longer, on the median segment still longer and paler; smooth, impunctate, as is also the post-scutellum. Except in the centre at the base the median segment is strongly punctured; the punctures large, deep; the base smooth, the punctures in the middle not so strong as on the apex, where they almost form reticulations; at the base in the middle is a smooth area, twice as long as broad, the apex transverse; the sides bordered by a straight stout keel, interrupted in the middle; the apex is open, being bounded only by the punctures. Propleuræ smooth, and very shining, deeply hollowed below; the apex at the top punctured; the sides crenulated from top to bottom; the mesopleuræ smooth and shining; the furrow near the base curved, moderately wide and deep, not reaching to the tubercles; at the tegulæ strongly punctured, the punctured space somewhat triangular; the apex depressed below, and bordered by a narrow crenulated furrow. Metapleuræ strongly punctured, the portion below the keel with the

punctures weaker than on the upper part ; the base above rugose ; bordered by a row of punctures. Wings hyaline ; the stigma and nervures black ; the transverse cubital nervures are united at the top of the areolet ; the recurrent nervure is received in its apical third. The four anterior legs are yellow ; the femora with a fulvous tinge ; the hinder tibiæ are white ; near their base is a narrow black line, and there is one, twice its length, on the apex ; the hinder femora and coxæ are fulvous ; the tarsi blackish. Petiole rugosely punctured throughout ; depressed at the base ; the sides to beyond the middle stoutly keeled ; the other segments closely punctured ; the basal strongly punctured ; the punctuation on the others becomes gradually weaker. The basal ventral segment is keeled to shortly beyond the middle ; the apex smooth ; the depressed sides above aciculated, the lower part finely obliquely striated ; the outer edge of the segment is longitudinally striated ; the other ventral segments black.

PIMPLA INDRA, *sp. nov.*

*Nigra ; femoribus tibiisque anticus rufis ; alis fulvo-hyalinis, stigmate nervisque nigris.* ♀.

Long. 15 ; terebra 5 mm.

Antennæ black ; the scape smooth, shining ; the flagellum almost bare. The face strongly punctured ; the clypeus with a row of larger, deeper and longer punctures ; the front smooth ; broadly depressed ; the lower part quite smooth, the upper obscurely transversely striated in the middle. Mesonotum shining, having a faint plumbeous hue. Scutellum at the base very shining, bearing only a few slight punctures ; its apex rugosely punctured. Postscutellum smooth, the depression at its sides wide, strongly longitudinally striolated. The basal two-thirds

of the median segment strongly transversely striated, most strongly so in the middle; the apex in the middle smooth, slightly raised in the middle; the sides obscurely aciculated. The base of the propleuræ finely longitudinally striated; the lower two-thirds of the apical part rather strongly longitudinally striated. Mesopleurae coarsely punctured, the middle smooth above; the apex stoutly crenulated; the part over the middle coxæ coarsely striated. Metapleuræ coarsely rugosely punctured; the apex more closely punctured than the base; the basal depression smooth in the middle, the sides roughly punctured. Legs black; all the femora and the anterior tibiæ ferruginous; the anterior tarsi fuscous. The central depression on the petiole smooth; the sides and apex roughly aciculated; the sides at the apex divided by a flat, oblique, raised part; in the centre above it is finely transversely striated, intermixed with large punctures.

PIMPLA VIDUA, *sp. nov.*

*Nigra; femoribus, tibiis tarsisque anterioribus femoribusque posticis rufis; tibiarum posticarum basi late albo-annulato; alis hyalinis, nervis stigmatisque nigris.* ♂.

Long. 8 mm.

Antennæ black, the flagellum covered with a white down; the scape closely punctured, covered with longish, pale hairs. Face and clypeus thickly covered with long, white hair; the front and vertex shining, impunctate, almost glabrous; the maxillary palpi are white; the labial fuscous. Mesonotum shining, obscurely punctured, as is also the scutellum; but the sides below the latter are strongly punctured. Median segment coarsely, rugosely punctured, except the base and the apex in the middle; thickly covered with longish, fuscous hair. The lower

part of the propleuræ behind strongly longitudinally striated; the mesopleuræ obscurely punctured, covered with longish, soft, white hair; the metapleuræ coarsely punctured, more closely and coarsely on the lower part. All the coxæ are black, and thickly covered with white hair; the trochanters are black at the base; the hinder tibiæ and tarsi black, thickly covered with white hair; near the base of the tibiæ is a white band, which extends to shortly beyond the middle; the calcaria are white. Abdomen entirely black; closely and coarsely punctured; the posterior segments with the puncturing weaker, and densely covered with long, white pubescence. The transverse cubital nervures nearly unite at the top; the recurrent nervure is received near the apical third of the cellule.

PIMPLA LATIFOVEATA, *sp. nov.*

*Nigra; facie, tegulis pedibusque flavis; femoribus posticis rufis; abdomine rufomaculato; alis hyalinis, stigmate fuscō. ♂.*

Long. 9 mm.

Flagellum of antennæ black, slightly brownish beneath towards the apex, covered with a microscopic pile; the scape yellow, black above; and there is a narrow, black line down the sides; sparsely covered with long, white hair. The face, clypeus, palpi and the mandibles, except at the base, yellow; the face bearing large, scattered punctures and sparsely covered with short fuscous hair; the front and vertex smooth and shining, the frontal depression shallow. Thorax smooth and shining except the median segment. The apex of the scutellum and the postscutellum brownish; the median segment except in the middle, at the base and the apex, covered with shallow, widely separated punctures; the middle at the base smooth, and bordered laterally by narrow, slightly diverging keels.

Pleuræ shining, impunctate ; except the meta- above the keel ; the keel near the base of the mesopleuræ distinct ; the furrow in front of the apex is crenulated ; behind, at the edge, brownish. The upper part of the metapleuræ sparsely punctured ; immediately over the spiracles is a semicircular, shallow depression. Legs stramineous ; the hinder coxæ slightly, the hinder femora distinctly, fulvous. Wings hyaline ; the nervures blackish ; the stigma fuscous ; the areolet elongate, three times as long as its height ; the transverse cubital nervures united at the top ; the recurrent nervure is interstitial. Abdomen black, the ventral surface white ; the base of the second and third segments narrowly red, the red continued obliquely down the sides to unite with a broad band on the apex ; the third segment similarly coloured, but darker at the apex ; the fourth rufous at the base only ; the petiole smooth at the base ; the triangular depression moderately deep, and continued down the middle to the base of the punctured part as a wide, deep furrow, rounded at the apex ; its sides and apex above, beyond the furrow, bearing large, deep punctures ; the other segments strongly punctured ; the punctures become closer and rougher ; the apices of the second, third and fourth segments are impunctate.

This species, in the coloration of the legs, agrees with *P. himalayensis*, with which it also agrees in having two longitudinal keels on the base of the median segment ; but it differs from it in the punctuation on the median segment being very much less strong and the punctures fewer in number ; the punctuation on the abdomen is also weaker, and it differs in the form of the petiole, in which the apical furrow, so distinctly defined in the present species, is represented in *P. himalayensis* by a mere shallow depression ; lastly, they are easily separated by the form of the areolet, and by *P. himalayensis* having the hinder tibiae black and white, and the hinder tibiae fuscous.

PIMPLA LAETIVENTRIS, *sp. nov.*

*Nigra; pedibus rufis, coxis trochanteribusque flavis; abdomine flavolineato; alis hyalinis, stigmate nervisque testaceis.* ♀.

Long. 10; terabra 8—9 mm.

Head shining; the front and vertex impunctate; the hinder ocelli bordered by a furrow on the outer side; the face thickly covered with pale hair; the clypeus depressed, thickly covered with long, fuscous hair; dull brownish, the apex black; the palpi stramineous; the mandibles black. Thorax black, except for a narrow line on the apical half of the pronotum and the tegulæ, which are yellow. Mesonotum shining, covered with short, black hair; the scutellum flat, aciculated, sparsely marked with punctures, and with a small round fovea in the middle, near the base; the postscutellum smooth, shining. Median segment strongly and uniformly punctured, except in the middle at the base and apex, where it is smooth, impunctate, and thickly covered with long, pale hair. Pro- and meso-pleuræ smooth and shining; the middle of the mesopleuræ sparsely haired; the upper part of the meta-pleuræ closely punctured; the part below the curved keel impunctate. Mesosternum smooth, thickly covered with pale hair. The four anterior legs have the red on the femora suffused with yellow; the hinder tibiæ and tarsi are paler, more yellowish in tint than the femora. Wings hyaline; the costa, stigma and nervures testaceous; the nervures paler, not so reddish in tint; the areolet slightly oblique, rather long; the transverse cubital nervures meet at the top; the recurrent nervure is received in the apical fourth of the areolet. Abdomen black; the sides of the third and fourth segments narrowly and obscurely, of the fifth and sixth more broadly and clearly, yellow; the sixth and seventh segments are bounded with lemon-yellow at

their apices. All the segments are closely and strongly punctured.

Comes near to *P. latifoveata*, which may readily be separated from it by the median segment being only sparsely punctured, by the smaller areolet, by the absence of a yellow line on the pronotum, and by the scutellum being more distinctly raised and less strongly punctured.

**H. Body and legs entirely black.**

**PIMPLA EREBUS, sp. nov.**

*Nigra; tibiis tarsisque anticus flavotestaceis; alis hyalinis, basi fere fulvis; stigmate nervisque nigris.* ♀.

Long. 13; terebra 4 mm.

Face closely punctured, thickly covered with short, white hair; below the antennæ the depression is large, triangular and deep; the centre is distinctly keeled; there is a distinct, semicircular depression at the base of the clypeus, the apex of which is obliquely depressed, smooth and shining; the front in the middle is stoutly, transversely striolated. Mesonotum almost opaque, thickly covered with short, depressed hair; the base transversely striated. Scutellum raised, smooth, and shining, sparsely covered with long, white hairs; the postscutellum with large, deep punctures; the depression at its sides wide and deep, and bearing large longitudinal striations. The base of the median segment is finely, transversely striated; the rest, to shortly beyond the middle, strongly transversely striated, the striations being thicker in the middle; the apex is broadly smooth; the sides striated. The propleurae at the base finely longitudinally aciculated; the lower part strongly, the apical above more finely longitudinally striated; the central hollow strongly striated in the middle, smooth at the top and bottom. Mesopleurae

strongly punctured; the apex smooth above, the lower side strongly longitudinally striated, the striations longest in the middle; the apex itself stoutly crenulated. Coxæ faintly punctured, and covered sparsely with white hair; the middle knees are testaceous. The basal depression on the petiole smooth and shining; the sides coarsely, but not very distinctly, punctured; the apex above with shallow punctures which are more numerous at the apex; the second segment is obscurely punctured; the others are very finely and closely transversely striated.

*CHRYSOPIMPLA gen. nov.*

Wings with the areolet petiolate, oblique, triangular, receiving the recurrent nervure before the middle; the apical abscissa of the radius roundly curved upwards at the base; the cubital nervure at the base straight, oblique, the part before the cubitus not curved or rounded, and except where the first recurrent nervures join it, almost on the same plane with the basal portion; the transverse median nervure is received before the transverse basal in the cubital-discoidal cellule. In the hind-wings the transverse anal nervure is interstitial. Head narrow, not dilated behind; the face elongated, largely developed below the eyes; the clypeus separated from the face by a narrow suture; the apex of the mandibles bidentate; the upper tooth the larger. Eyes distinctly converging on the lower side and distant from the base of the mandibles. Antennæ long and slender. Mesonotum shining, distinctly but not closely punctured. Scutellum large, convex, distinctly raised above the level of the mesonotum, its base with a long, rounded slope; its apex with a shorter oblique one; the postscutellum large, obliquely sloped at the base, not foveate there. Median segment without keels; and having a gradually rounded

slope from the base to the apex. The lineal spiracles are placed in the middle, if anything nearer the apex than the base. Legs, especially the hinder, stout; the base of the front tarsi incised, and nearly twice the length of the tibiæ; the fourth joint of the hinder tarsi minute, not half the length of the third; the claws large, curved. Abdomen closely punctured, except on the petiole, which is as long as the second segment, and is not much depressed at the base; the apical segment and the ovipositor as in *Pimpla*. The body black, largely marked with yellow; the wings with an apical cloud. Tarsi spinose.

In the elongated face, and in the form of the areolet and of the radial nervure, this genus resembles the Australian *Lissopimpla* Kriech. (*Xenopimpla* Cam.), but that differs in having the mesonotum trilobate, the median segment transversely striated and toothed laterally, the abdomen smooth, and the hinder femora toothed near the apex.

#### CHRYSOPIMPLA ORNATIPES, sp. nov.

*Nigra; capite, thorace abdomineque late flavomaculatis; pedibus fulvis, coxis flavomaculatis; alis hyalinis, apice fusco-unimaculatis, stigmate testaceo.* ♀.

Long. 14; terebra 5 mm.

Antennæ fully longer than the body; filiform, black, the scape yellow beneath, covered with pale hair; the base of the flagellum brownish beneath; the apex rufous. Head yellow; the front broadly in the middle, but narrowed before the ocelli; the ocellar region and the occiput, except near the eyes, black. The mandibles are yellow, with the teeth black; the palpi yellow. The entire head smooth, shining and impunctate; very sparsely covered with pale hair. Mesonotum black, closely and rather strongly punctured; on either side is a yellow line

running from the base to the scutellum ; the base of the marks being somewhat triangularly dilated. Scutellum and postscutellum yellow ; the scutellum raised, sparsely punctured ; the depression at the base of the former deep, smooth ; the postscutellum smooth. The median segment yellow, a large, black, hourglass-shaped mark down its centre ; the basal part being longer and wider than the apical ; the basal half of the segment is strongly, somewhat rugosely, punctured ; above and touching the stigma is a black mark which reaches the base of the segment, becoming narrowed as it does so. Legs rufous-fulvous ; the fore coxae and trochanters entirely, the middle coxae yellow, marked with rufous-fulvous behind ; the hind coxae black, yellow above, except for a large black mark in the middle, extending from the base to the apex, becoming gradually wider as it does so ; the hinder tarsi infuscated. Wings clear hyaline, except for a large fusco-violaceous mark at the apex, extending almost equally on both sides of the apex of the radial nervure ; the areolet is distinctly petiolated ; slightly oblique ; the recurrent nervure is received very shortly beyond the middle of the cellule. Abdomen black ; closely and strongly punctured ; the apices of the first to the fifth segments banded with yellow ; the sixth yellow at the sides only, the middle of it being rufous ; the last two segments are entirely rufous, narrowly lined with yellow at the apices ; the ventral segments, except the apical, yellowish.

The ♂ is similar to the ♀ in coloration, except that the hinder femora are of a clearer yellow colour, and broadly marked with black ; the hinder tarsi are blackish ; the antennae are as long as the body, the flagellum more brownish, and with the joints dilated at their apices ; the black mark on the median segment is narrowed in the

middle, dilated at the base and apex, the basal dilation being the larger; the yellow on the mesopleuræ is more extended, the basal part being entirely yellow, as is also the sternum; the yellow lines on the abdomen are also more extended.

CHRYSOPIMPLA PERSIMILIS, sp. nov.

Long. 9 mm. ♂.

This species looks like a small form of the preceding (*P. ornatipes*), with which it agrees closely in general coloration; but it is, I believe, quite distinct. Apart from the size, it differs in having the thorax quite smooth, without any punctures; the areolet is not petiolated; the abdominal depressions are very indistinct; the hinder coxæ not black marked with yellow, but yellow and fulvous marked with black above and at the side.

Antennæ slightly longer than the body; the scape yellow; the base and apex of the flagellum more or less brownish. Head shining, impunctate; the front broadly, the ocellar region, the vertex and occiput, except at the sides, black. Mandibular teeth black. Thorax shining, impunctate, except behind the metathoracic spiracles, where it is rough and irregularly punctured, and the extreme apex of the mesopleuræ, which is crenulated. On the mesonotum are two lines, dilated at the base, narrowed towards the apex, running from the base to the scutellum; the scutellum, postscutellum, the base of the propleuræ, a large mark on the mesopleuræ, broad at the base and continued narrowly there to the sternum, and irregularly rounded behind, and the metapleuræ, except the base and a line running obliquely to the spiracles, yellow. The median segment is yellow, except for a broad, hourglass-shaped mark, down the centre. Legs fulvous; the four front coxæ and trochanters, and

the hinder, except the base broadly behind, inside and out, and a mark, gradually dilated from the base to the apex in the middle, black; the hinder tarsi fuscous. Wings hyaline except for a fuscous violaceous cloud in the apex of the radial and the top of the cubital cellules; the areolet oblique; the transverse cubital nervures unite at the top, but do not form a petiole; the recurrent nervure is received shortly before the middle of the cellule. The petiole is smooth and shining, impunctate; the apex broadly yellow; the black at the apex and sides running into rufous; the other segments are closely and rather strongly punctured, except on the yellow apices; the depressions are not very strongly impressed; the apical segments entirely fulvous rufous; the ventral surface yellowish.

*CTENOPIMPLA*, *gen. nov.*

Areolet small, obliquely triangular, open at the apical margin; pedunculated, the pedicle as long as the cellule; the recurrent nervure is received near the apex. Head transverse in front; the clypeus separated from the face by a deep furrow; roundly projecting, its apex rounded. Mandibles bidentate at the apex. Eyes large, parallel, not curved at the top on the inner side, distinctly distant from the base of the mandibles. Parapsidal furrows obsolete; the median segment with a transverse keel near the apex. Legs more slender than usual; the claws pectinated. Abdominal segments longer than broad, shagreened. Ovipositor elongate, not originating from a ventral cleft. Metathoracic spiracles small, oval, placed at the apex of the basal third; the petiolar spiracles slightly smaller and rounder, and placed near the apex of the basal third.

The affinities of this genus are clearly with *Lissonota*,

from which it differs in the strongly pectinated claws; in the appendiculated areolet, in the longer and thinner legs, and in the basal three abdominal segments being longer compared with their breadth.

Some species of *Lissonota* have the areolet petiolate, but only shortly so. The hinder tarsi are spinose, the fore tarsi are twice the length of the tibiæ. The antennæ are longer—if anything longer than the body—than in *Lissonota*; the mandibular teeth are equal in length; the eyes are margined on the lower side; the transverse median nervure is received close to the transverse basal, nearer the apex of the wings.

CTENOPIMPLA ALBOMACULATA, *sp. nov.*

*Nigra; facie, ore, linea pronoti, scutelli apice, linea magna mesopleurarum flavis; pedibus rufis; coxis trochanteribusque anticus flavis; coxis, trochanteribus, tibiis tarsisque posticis nigris; alis fulvohyalinis, stigmate nervisque fuscis.* ♀.

Long. 10; terebra fere 10 mm.

Antennæ filiform, black; brownish towards the apex; the head below the antennæ lemon-yellow, except for a broad band down the middle of the face and the foveæ; the upper orbits narrowly yellow, and the outer orbits at the bottom more broadly, yellow. The front, vertex and the face closely punctured, sparsely pilose; the clypeus roundly convex, smooth, impunctate; the mandibular teeth black. Mesonotum opaque, closely punctured; the scutellum more strongly punctured; on the base are two large, yellow marks, somewhat pear-shaped; placed obliquely and meeting in the middle of the scutellum, where they almost unite; the notum at their sides shining and strongly striated. Median segment closely and uniformly punctured, except at the

apex, which is, in front of the keel, more strongly punctured. The mark on the edge of the pronotum is dilated at the base; the lower part of the propleuræ is more widely yellow, the band being dilated in the middle above; on the mesopleuræ in the middle is a broad, yellow band, curved upwards at the base and, to a less extent, downwards at the apex; on the metapleuræ, near the apex, is an irregular mark. The anterior coxæ and trochanters are yellow; the middle pair fulvous, tinged with yellow; the four anterior trochanters are marked with black; the hinder coxæ black, yellow at the base above; the trochanters at the base and the apex above, and the tibiæ and tarsi, black. Wings hyaline, tinged with fulvous, especially at the base; the costa and nervures fuscous; the petiole of the areolet is longer than its inner branch; the outer branch is obliterated beneath. All the abdominal segments are twice as long as broad; the petiole is longer than the second segment; the basal three segments are closely punctured, the apical quite smooth. Except at the apex, the ventral surface is lemon-yellow.

? = *Aloplasta*.  
MEYVA, gen. nov.

Areolet with a long pedicle; the recurrent nervure interstitial with its second branch. Eyes large, reaching near to, but not touching, the base of the mandibles and not converging beneath. Mandibles with two stout, unequal teeth on the apex. Head oblique, not projecting behind the eyes; the occiput margined. Mesonotum forming one piece. Metanotum with a transverse keel beyond the middle; its spiracles elliptical; about three times as long as their breadth. Abdominal segments all longer than wide, the petiole as wide at the base as at the apex; its spiracles small, round, and placed at the end of the basal

third. Legs slender; the hinder tarsi not perceptibly longer than the tibiæ; tarsi spined; their claws simple.

The relationship of this to the genus *Ctenopimpla* here described is clear enough. The differences between the two may be expressed as follows.

Clypeus not separated, metapleural spiracles elliptical; the tarsal claws simple. *Meyva.*

Clypeus separated; metapleural spiracles small, oval, almost round; the tarsal claws pectinated.

*Ctenopimpla.*

MEYVA VILLOSA, *sp. nov.*

*Nigra, abdominis apice late pedibusque rufis; coxis, trochanteribus tarsisque posterioribus nigris; alis fusco-hyalinis, apice fumatis, stigmate nervisque nigris.* ♂.

Long. 15 mm.

Antennæ black; the apex broken off. Head black; the inner orbits narrowly in the middle, more broadly and longer at the top and bottom, the outer narrowly, the clypeus, a transverse line above it, the mandibles broadly at the base, and the palpi, yellowish; the palpi more testaceous in tint. Face closely punctured, thickly covered with white pubescence; the front smooth, the vertex coarsely aciculated. Thorax thickly covered with short, pale hair, which is shorter and darker on the mesonotum, longer and paler on the metanotum. Mesonotum shining, strongly punctured; the scutellum also strongly punctured; the punctures larger and more widely separated than on the mesonotum; at the base of the scutellar keels is a yellow spot. Metanotum strongly punctured, the punctures deep, large and close to each other; above the apex is a stout, transverse keel. Pro- and meso-pleuræ closely punctured, the latter smooth and shining in the middle behind; the metapleuræ more closely punctured. The pedicle of the areolet is as long

as the cellule itself; its outer nervure is largely bullated beneath; the recurrent nervure is joined to it. The coxae and trochanters are black; the anterior pair yellowish in front; the hinder tarsi are spinose beneath. Abdomen rufous; the petiole except at the apex; and an interrupted mark near the base of the second segment, black.

#### MACROGASTER.

I believe I have correctly referred the following species to Brullé's genus *Macrogaster* (*Hymén.* iv. p. 185 pl. 41 f. 4), the type, and only known species, of which is from the Cape of Good Hope. His generic description, however, is very defective in some important points; and it is quite possible that our species may not belong really to *Macrogaster*. He places *Macrogaster* next to *Cryptus*, but the relationship of our species is undoubtedly with the *Pimplides*. In neuration it agrees with *Epirhyssa*, to which the species described by Smith (*Proc. Linn. Soc. Zool.* 1857, p. 121) is clearly congeneric; but it differs in the mesonotum not being striated, and in other respects. The following are the salient generic characters of our species.\*

Head large, not much dilated behind the eyes, which are large, but do not reach to the base of the mandibles. Face keeled in the middle; clypeus rounded or with the sides slightly oblique at the apex; at the base not clearly separated from the face. Mandibles with a large lower, and a smaller upper, apical tooth. Antennæ stout or slender, but not so slender as in *Pimpla* or *Rhyssa*. Thorax stout; the mesonotum trilobate, the middle lobe

\*This genus has the alar neuration of *Hemigaster*, but in other respects is very dissimilar, e.g., that genus has not the mesonotum trilobate; the spiracles are received between the apex and the middle of the petiole; the basal three segments of the abdomen are greatly enlarged, the head is smaller, and the petiole bicarinate above.

small, triangular, transverse at the base; strongly punctured. Scutellum not much raised, its sides not carinate; its base depressed; the postscutellum bifoveate at the base. Median segment more or less areolated; its spiracles large, linear. Legs stout, as in *Pimpla*; the calcaria short; the claws long, curved, simple. Wings without an areolet; the transverse cubital nervure interstitial with the recurrent; the transverse basal nervure also interstitial; the first recurrent nervure is received in the basal third of the cellule, much nearer the base than in *Pimpla*. Abdomen stout; the petiole not so stout as in *Pimpla* and of variable form; the spiracles are placed shortly before the middle; the segments smooth and shining, neither punctured nor striated, and without depressions; the hypopygium large, cultriform; ovipositor elongate.

The genus as here defined falls into two groups.

a. Middle lobe of the mesonotum distinctly raised above the lateral ones; the median segment distinctly transversely striated or reticulated.

1. Body black.

Legs entirely black; the antennæ not annulated with white. *M. nigricans.*

Legs for the greater part fulvous and yellow; the antennæ annulated with white.

*M. varipes.*

2. Body and legs rufous; the hinder legs black.

*M. ferrugineus.*

b. Middle lobe of the mesonotum not distinctly raised above the lateral ones, the median segment not distinctly reticulated or striated. *M. luteus.*

#### MACROGASTER NIGRICANS, *sp. nov.*

*Niger; orbitis oculorum antice albis; alis hyalinis, apice fumatis.* ♀.

Long. 13; terebra 12 mm.

Scape of antennæ above covered with short, blackish pubescence, below with longer, fuscous hair; the flagellum thickly with minute, stiff pubescence. Head black; the inner orbits from the antennæ to the base of the mandibles broadly, the upper third narrowly, yellowish testaceous. Face strongly punctured, running into irregular reticulations; projecting in the middle below the antennæ; the apex of the clypeus impunctate, the sides straight, oblique. The basal half of the mandibles above and below with large, deep punctures; the middle with two stout keels; covered with longish, white hair; the palpi fuscous. Mesonotum strongly punctured, the punctures large, deep; the base transverse, the middle lobe forming a large triangular piece raised above the rest, especially at the base. Scutellum shining, the apex with a plumbeous hue; the punctures large, deep, more widely separated; the fovea at the base large, deep, as wide as the base of the scutellum; in the middle are three stout keels; the middle one straight, the outer slightly thinner and more oblique. Postscutellum flat, large, having a small fovea in the centre at the base, and a large deep one, on either side, reaching near to the apex. Median segment at the base with a small area wider than long and with its apex roundly bent inwardly in the middle; the apex flat; stoutly transversely striolated; the sides at the base irregularly reticulated, irregularly margined at the apex; the sides irregularly reticulated in front of the spiracles. The base and apex of the propleuræ closely punctured; the middle depressed; the central depression at the top somewhat obliquely, the rest stoutly longitudinally, striolated. Mesopleuræ closely punctured above and at the base; the lower part more strongly punctured, almost running into oblique striations in the middle; the apex crenulated; the middle very smooth, shining, and of a

plumbeous hue ; the metapleuræ at the top near the base, finely, the rest more coarsely, reticulated ; closely covered with soft, white hair. Legs entirely black, except the fore femora and tibiæ in front, which are dirty testaceous, that on the femora having a more reddish hue ; thickly covered with white hair ; the coxæ and femora (especially the hinder) punctured rather strongly. Wings fusco-hyaline, a darker cloud below the stigma ; the apex infuscated. Abdomen smooth, shining, having a distinct plumbeous hue ; the basal segments glabrous ; the apical fringed with white hair ; the ventral segments plumbeous, their apices white ; the hypopygium ploughshare-shaped, punctured.

MACROGASTER VARIPIES, *sp. nov.*

*Niger; flagello antennarum late alboannulato; pedibus anterioribus pallide flavis; posticis fulvis, nigromaculatis; alis hyalinis, fusco-bifasciatis.* ♀.

Long. 12 ; terebra 13 mm.

Antennæ thickly covered with white hair, the under side of the scape, and second joint beneath, and the twelfth and following joints white. The face, except a large, squarish mark in the centre over the clypeus and a narrow black line running from the antennæ to it, the clypeus, the inner orbits from the ocelli, the outer narrowly above, broadly below, to the base of the clypeus, yellowish white. Face and clypeus strongly punctured, sparsely covered with white hair. Mandibles black ; the base coarsely irregularly punctured, sparsely covered with long, white hair ; the palpi whitish testaceous. Middle lobe of the mesonotum distinctly raised and separated from the lateral, not narrowed to a distinct point at the apex ; the depression uniting it to the scutellar foveæ is bordered on either side by stout keels, and has at its base a few stout, somewhat curved, transverse keels ; rather strongly, but

not deeply punctured, the middle of the lateral lobes and the apex in the middle almost smooth. Scutellum more strongly punctured than the mesonotum; the punctures larger and deeper. The base of the postscutellum deeply depressed, the depression divided in two by a narrow keel; the apex white, smooth, slightly and narrowly depressed in the middle. The base of the median segment smooth; the middle area almost square; the central space at the apex with a few stout transverse keels at the sides; the base of this part is transverse, its sides oblique; the part in front of the spiracles stoutly irregularly keeled; this space being divided into two by a stout, oblique keel. The top and base of the propleuræ closely, and not very strongly, punctured; the middle stoutly transversely below and obliquely striated above; the part behind the striated part at top being smooth. Mesopleuræ closely punctured; more closely and finely above than below; the middle smooth and plumbeous. Metapleuræ closely and coarsely punctured, the lower and posterior portions with the punctures running into reticulations. Wings almost hyaline, a cloud running from the stigma to the costal nervure and the apex fuscous; the recurrent nervure is received shortly behind the transverse cubital. The four anterior legs are yellowish, the femora having a more fulvous hue; the hind coxæ, except for an elongated white mark on the apex behind, the apical joint of the trochanters, the base of the femora narrowly, the apex broadly, and the apex of the tibiæ, black; the femora distinctly fulvous; the tibiæ fulvous towards the apex. Abdomen with a plumbeous hue; all the segments whitish yellow at the apex; the petiole more broadly than the others; the petiole longish; the basal half distinctly narrowed; the base on the under side with a distinct, sharp, slightly curved tooth. The

ventral surface from the petiole whitish yellow; the hypopygium also yellowish, narrowly lined with black down the middle.

MACROGASTER FERRUGINEUS, *sp. nov.*

*Ferrugineus*; *flagello antennarum pedibusque posticis nigris*; *alis hyalinis, apice fumatis*. ♂.

Long. 9 mm.

Antennæ nearly as long as the body, the scape clear, the base of the flagellum rufous; the scape sparsely covered with long, fuscous, the flagellum more densely with short, black hair. Head yellow, except the front broadly in the middle, the vertex and the upper part of the occiput which are black; the face strongly punctured, thickly covered with pale, fuscous hair, its lower part stoutly keeled in the middle; the clypeus broadly depressed in the middle, its apex smooth. Mandibles black, smooth, yellow, its apex black; the palpi pale yellow, thickly covered with long, white hair. The inner orbits are raised between the base of the antennæ and the lower ocellus; above they are bordered by a deep and wide furrow; the vertex is covered with large, deep, clearly separated punctures; the front is aciculated, sharply keeled down the middle; the keel extending to below the antennæ and bifurcated at the top. Mesonotum closely punctured; the depression at the apex of the middle lobe with four stout, longitudinal keels; there is a shallow, narrow furrow down the middle of the lateral lobes. The scutellum punctured all over, but not quite so strongly as the mesonotum; its apex, and the postscutellum have a yellowish tinge; the latter is smooth; the depression at its side closely striated at the base; its apex distinctly keeled. The median segment has three basal areae, the central being much the smaller; the outer are sparsely

punctured ; the middle beyond these is broadly smooth ; the sides stoutly irregularly transversely striated ; at the sides of the apex is a stout somewhat Y-shaped keel, the outer fork of which is larger and more curved, the tail of the Y being continued down to the lower side of the petiole. Propleuræ punctured above, the lower part smooth, the middle coarsely striated. The middle and upper part of the mesopleuræ smooth, except for some fine keels behind the tubercles, where they are depressed ; the lower part obscurely punctured and covered with long, white hairs ; the tubercles are large ; the furrow at the apex bears some stout keels. Metapleuræ closely punctured, more closely at the base, where there is an oblique keel, which unites with the outer corner of the spiracular area ; the latter is triangular at the apex, at the base its keels are oblique. Wings hyaline, except for the apical cloud ; the nervures and stigma black ; the transverse basal and the recurrent nervures interstitial ; the latter has two large bullæ, its centre being thus completely separated from the lower and upper portions. The four anterior legs are rufo-testaceous ; the hinder pair entirely deep black, and covered thickly with black hair ; their calcaria are rufo-testaceous. Abdomen smooth, rufous ; the apex more or less blackish.

MACROGASTER LUTEUS, *sp. nov.*

*Luteus, nigromaculatus ; antennis nigris ; alis hyalinis, nervis stigmateque nigris.* ♂.

Long. 8-9 mm.

Antennæ black, becoming brownish towards the apex ; the under side of the scape clear, of the base of the flagellum obscure, yellow ; the scape thickly covered with long, the flagellum much more thickly with shorter, fuscous hair. Face strongly punctured, thickly covered with short, fuscous hair ; the middle above broadly carinate ;

the clipeus semicircular above, slightly depressed, sparsely punctured, foveate at the sides above; its apex transverse, rounded at the sides. The inner orbits above distinctly margined; at the top of the eyes there is a distinct furrow; between the antennæ is a rounded keel; the front is depressed in the middle; the sides are closely punctured; the vertex sparsely punctured, black; the ocellar region being also black and, behind, the black extends on to the upper part of the occiput. Mesonotum strongly punctured; on the apex of the middle lobe is a large black mark, gradually narrowed and rounded to the apex; its base trilobate, the middle lobe the smaller; the lateral lobes are broadly black from near the base and are united at the apex at the scutellum. Scutellum with a rounded slope at the base and apex; strongly punctured, covered with long, fuscous hair; its apex bears a large black mark, rounded at the base. Postscutellum impunctate, shining, almost glabrous. The base of the median segment is black in the three basal areae which are punctured, smooth at the base; the middle area is broader than its length, and rounded at the apex; from its sides runs a short, oblique keel; from the middle a shorter, straight one, and outside the oblique keels is a shorter one, also oblique; the apex is very smooth, its sides keeled, with a short, elongated area joined to it on the inner side at the top; inside this, near the base, is a short curved, transverse keel. Propleuræ strongly punctured, except in the middle, the lower side strongly obliquely striolated. Mesopleuræ strongly and closely punctured, except on the apical half near to the apex; the apex itself is raised and closely punctured; on the middle, at the apex, is an oblong black mark. Metapleuræ closely punctured, between the two keels bordering the spiracular region stoutly irregularly striolated. Meso-sternum closely punctured, and thickly covered with pale

fulvous hair. Wings hyaline, except for a fusco-hyaline cloud in the apex of the wings; the recurrent nervure is received on the outer side of the transverse cubital, and is largely bullated above and below the middle; the transverse basal nervure is received distinctly behind the transverse basal. Legs coloured like the body; a small round mark on the outer side of the hinder coxae at the top, the apical joint of the hinder trochanters and the hinder tarsi, black; the tibiae and tarsi are thickly covered with short, fulvous hair; the posterior femora are strongly and closely punctured. Abdomen shining, impunctate; the base of the second and of the following segments black, the marks becoming narrower towards the apex; the gastrocceli are wide, smooth and oblique.

The amount of black on the legs varies; the hinder femora may be broadly black below.

HEMIGASTER CARINIFRONS, *sp. nov.*

*Rufus; flagello antennarum, femoribus posticis, tibiis posticis late basique coxarum anteriorum nigris; annulo antennarum tarsisque posticis albis; alis hyalinis, stigmate fulvo.*

Long, 8 mm.

Antennae as long as the body, slightly thickened towards the apex; the basal two joints and the base of the third rufous; the seventh to the eleventh joints clear white; the basal joints of the flagellum elongate. Head rufous, except the mandibular teeth, which are black; the face and clypeus closely punctured, thickly covered with white hair; the clypeus not separated by a suture from the face, foveate at the sides above; the face stoutly carinate in the middle, the keel depressed at the base and the apex; the apex of the clypeus transverse, its sides oblique. The mandibles at

the base closely punctured, their sides keeled. Vertex closely punctured; the front smooth, hollowed; down its middle is a stout, sharp keel, obliquely bent on its lower side; on either side of it at the base is a short, oblique keel; the upper orbits, close to the eyes, are raised and sharply keeled, as is also the occiput on the lower side, and the latter, shortly above the mandibles, ends in a stout, oblique, somewhat triangular tooth. Mesonotum closely punctured; the parapsidal furrows narrow but distinct. Scutellum raised, longer than broad, narrowed towards the apex; closely punctured, thickly covered with fuscous hair; its sides and apex stoutly carinate; postscutellum keeled at the sides; behind it becomes gradually wider from top to bottom, and bears there some stout keels. Median segment smooth in the middle, the sides closely punctured, the outer and apical parts striolated; the basal area has an oblique slope towards the thorax; is keeled all round and obliquely narrowed towards the apex; from it run two keels to the apex, where they slightly converge; at the top they have a slight rounded, curved slope; at the base there are two lateral areæ, which are wider than their length; in front of this is an area of about the same size, with the outer side angled in the middle; the apical area is twice as long as wide. The spiracular area is large, deeply obliquely depressed at the base, wider than long, and separated from the anterior by a stout oblique keel; all the areæ found in the *Ichneumonides* are clearly defined. The central areæ are smooth, the apical thickly covered with short, white hair; the lateral spine is large, leaf-like, transverse. Propleuræ closely punctured; the lower side stoutly obliquely striated. Mesopleuræ closely punctured, except in the middle behind; above obscurely striated; on the lower edge is a deep, curved, crenulated furrow;

metapleuræ shagreened; over the hinder coxæ is a curved keel; the spiracles are linear, oblique, narrow, rounded at the base and apex. The mesopleuræ furrowed down the middle; the furrow stoutly crenulated, broadly black, on either side. Legs longish; the four anterior rufotestaceous, their coxæ broadly black at the base in front; the terminal joint of their tarsi black; the hinder coxæ, trochanters, and base of the femora rufous, the rest of the femora black; the apical third of the tibiæ and the hinder tarsi, except the apical joint which is black, yellowish white; the tibiæ thickly covered with short, stiff hair; the hinder calcaria reach shortly beyond the middle of the metatarsus, which is spinose; the fourth joint is half the size of the third; the claws curved, simple. Petiole narrowed at the base, the apex dilated and curved; keeled down the sides and down the middle of the dilated part. Gastrocœli obsolete. The basal three segments large, of nearly uniform length; the others much shorter, and becoming gradually shorter. The base of the petiole is smooth, the apex closely punctured; the other segments closely punctured and thickly covered with short, white hair; the spiracles are small, oval, and are placed near the base of the apical third; the lower side is stoutly keeled along the edge. Wings clear hyaline; the stigma fulvotestaceous; the nervures darker; there is only one transverse cubital nervure, and consequently no areolet; the transverse basal nervure is interstitial; the cubital nervure is oblique at the base and emits a short branch from its middle.

The ♂ does not differ much from the ♀ in coloration. The hinder femora are testaceous below, and the white colour on the hinder tibiæ and the tarsi is of a more reddish testaceous tinge, and the stigma is darker.

This species agrees fairly well with the description

given by Brullé (*Hymén.* IV., p. 266), and with his figure (*pl. 41, f. 1*) of *Hemigaster*, of which he describes a species from India and another from Australia, if he has not made a mistake about the latter, for he describes it as a *Hemiteles*, which is probably a slip of the pen. In some respects the genus is intermediate, judging by the species here described, between the *Ichneumonides* and the *Cryptides*.

The generic characters of our species may be represented as follows. Antennæ longish, thickened towards the apex. Eyes large, margined, front widely and deeply depressed, tricarinate in the middle, the inner orbits on the lower side stoutly keeled; face distinctly keeled down the middle, mandibles bidentate at the apex. Parapsidal furrows distinct, scutellum stoutly keeled. Median segment completely areolated. Spiracles large, linear. Arolet absent; radial cellule large, wide, the apical half broadly lanceolate. The basal three segments of the abdomen large, the others small; the petiole bent at the apex; the spiracles small, round, placed at the base of the apical third; the gastrocœli obsolete. Tarsi spinose, the claws simple.

The following new genera and species are described here somewhat out of their natural order pending the completion of the examination of the groups to which they belong.

#### ILEANTA, *gen. nov.*

Belongs to Wesmael tribe of the *Ichneumones*, and is most nearly related to *Ichneumon*, from which it differs, as it does from all other *Ichneumonidae*, in the basal joint of the hinder tarsi having, on the lower side, a flattened leaf-like expansion extending from the base to near the apex,

it becoming gradually larger as it does so; the apex itself being broadly rounded. Antennæ flattened and dilated beyond the middle as in *Joppa*; mandibles at the apex with two large teeth. Scutellum flat; a broad, curved, deep depression at its base; its sides keeled. Median segment without closed areæ, only the posterior median being defined, and it is open at the apex; there are no spines. Metathoracic spiracles linear, longish, slightly curved, and placed near the base. Legs as in *Ichneumon* except as regards the metatarsus; the claws simple. Wings and gastrocœli as *Ichneumon*.

If it were not for the extraordinary structure of the metatarsus this genus might be included in *Ichneumon*; but the hinder tarsi are shaped quite differently from anything known among the *Ichneumonidae*. For anything like its form we have to go to the saw-fly genus *Croesus*.

#### ILEANTA LATITARSIS, sp. nov.

*Nigra; annulo antennarum late, facie, orbitis oculorum, thorace abdomineque albomaculatis; pedibus rufis; coxis, dimidio apicali femorum posticarum tarsisque posticis nigris; alis hyalinis, stigmate nigro.* ♀.

Long. 17 mm.

Antennæ black; the apex of the scape slightly and joints 9-20 white beneath; the apex attenuated; the part between it and the white-marked joints dilated and compressed; the scape punctured. Head black; the face and clypeus, the base of the mandibles broadly, the eye orbits all round, narrowly at the top, broadly at the bottom beneath on the outer side, white. Face and clypeus with shallow punctures; the middle of the face slightly projecting; the lower part of the sides of the projection marked with black, the black line curving anteriorly to the foveæ over the sides of the clypeus. The

teeth of the mandibles black; the part behind them piceous; the palpi white. Thorax black; the pronotum broadly in front, a line on its sides, a broad line over the mesopleuræ; the scutellar keels broadly, a narrow line on the apex of the scutellum, the postscutellum, two oblique lines on the apex of the median segment, not reaching quite to the apex itself, two marks on the apex of the first to fourth abdominal segments and the apical segments entirely, yellowish white. The upper part of the propleuræ finely and closely punctured; mesonotum closely punctured; beyond the middle (but not the apex itself) with the punctures larger and deeper. Scutellum, except in the middle at the base, with large, deep punctures; the postscutellum smooth; the median segment with large, deep punctures, which run into reticulations; the supra-median area is not very clearly defined, if anything, cordiform, raised and aciculated in the centre; the posterior median area narrow, longer than broad, rounded at the base, open at the apex; the other areae not defined, but there is a keel on either side of the spiracles and two down the apex in the centre; the apex is oblique, its middle strongly transversely striolated, the sides more strongly and more obliquely striolated. Mesopleurae punctured, except in the middle behind; the base coarsely irregularly striolated; the apex with short, stout, widely separated keels; the metapleuræ strongly irregularly reticulated and punctured, the part over the coxae obliquely striated. The four anterior coxae and trochanters yellow, the femora, tibiae and base of tarsi fulvous, the hinder coxae black, the trochanters fulvous and yellow, the basal half of the femora rufous, the apical black; the base of the hinder femora and the hinder tarsi, black. Areolet narrowed at the top, the transverse cubital nervures there being almost united; the recurrent nervure is received

almost in the middle. Petiole obscurely punctured at the apex, the base broad, and there is a broad mark on either side of the petiole; the second segment closely punctured, broadly and strongly striolated down the middle; the ~~second~~ more weakly striolated, the striæ not reaching to the apex; the fourth segment obscurely striated at the base. The yellow marks on the second segment are narrowed in the middle on the inner side; those on the third are slightly dilated on the lower side; those on the fourth are narrower and also attenuated on the inner side. The three basal ventral segments are yellowish testaceous, with a broad, black mark on the sides. Sheaths of the ovipositor black, their apex obliquely truncated, not rounded.

ROTHNEYIA ANNULICORNIS, sp. nov.

*Nigra; annulo antennarum albo; tibiis tarsisque anterioribus brunneis; alis fusco-hyalinis, nervis stigmatisque nigris.* ♀.

Long. 8 mm.; terebra fere 2 mm.

Hab. Khasia.

This distinct species may be separated from *R. wroughtoni* (*Manch. Memoirs*, xli. (1897), No. 4, p. 19), as follows :—

Antennæ entirely black, 25-jointed, petiole ferruginous; the flagellum of the antennæ without a white band; the third abdominal segment toothed laterally.

*R. wroughtoni.*

Antennæ 23-jointed, annulated with white; abdomen entirely black; the apex of the abdomen not toothed laterally. *R. annulicornis.*

Antennæ stout, slightly thickened from the middle towards the apex, bare; the sixth to the tenth joints white beneath; the second joint not much longer than

the scape and not much shorter than the preceding. Face strongly and closely punctured, thickly covered with short, pale hair; the clypeus more shining and with the punctures fewer in number and much more widely separated. Mandibles broadly piceous in the middle; the palpi testaceous, blackish at the base. Mesonotum closely punctured, more slightly at the sides. Scutellum strongly longitudinally punctured, narrowed considerably towards the apex, the sides stoutly keeled; the part underneath these lateral keels bearing stout, distinctly separated keels, the lateral keels at the apex projecting and having an oblique slope. Postscutellum not defined. Median segment large, flat at the base; the apex with a slightly oblique slope; the base of the segment smooth; the supramedian area broader than long, slightly dilated towards the apex; the posterior median at the top obliquely, at the middle and apex strongly, transversely striated. The spiracular area stoutly obliquely striolated, and having at its apex a large stout tooth, the base of which is stoutly striolated; the apex testaceous, smooth. Propleuræ finely punctured, the apex and lower side stoutly striolated. Mesopleuræ shining, the top finely punctured; at the base is a distinct keel, curved at the top below the tegulæ and having on its hinder edge below some stout striations; the apex of the mesopleuræ is crenulated, and the sternum is separated from the pleuræ by a deep depression at the base bordered on its lower side by a stout keel. Metapleuræ, except at the top towards the base, stoutly striolated, the upper half much more closely and regularly, and separated by a keel from the lower, which projects. Legs black; the anterior inclining to piceous or brownish; the femora pruinose. Wings smoky, more hyaline towards the apex; the stigma and nervures black; the areolet is narrowed at the top, being there about the length of the space bounded

by the recurrent and the first transverse cubital nervures; the cubital nervure in front of the areolet, the second transverse cubital and the recurrent nervures are largely bullated. Petiole shining, closely strongly and regularly striolated, and with a stronger striolation down the sides at the base, and extending to near the middle of the apical part; the second and third segments form one piece, the line of demarcation being only faintly indicated at the sides, and are uniformly and closely longitudinally reticulated and striated; the apex of the third rounded at the sides, which have no teeth, the centre looked at from above is transverse.

This species is very different from *R. wroughtoni*, differing markedly in some structural points; e.g., the latter has on each side of the scutellum a stout triangular tooth; the second and third abdominal segments are distinctly separated; the third ends in a stout tooth at the sides. In *R. annulicornis* the third segment has a distinct well defined depression along the sides and apex.

*Rothneyia* and the new genus, *Chreusa*, here described, will form a new division of the *Ichneumonidae*, *Rothneyinæ*, distinguished by having only the basal three segments of the abdomen very large, the others being very much abbreviated, by the wings having no areolet, by the parapsidal furrows being obsolete, and by the petiolar spiracles being placed between the middle and the apex.

#### CHREUSA, *gen. nov.*

Belongs to the section of the *Ichneumonides* with the metathoracic spiracles linear, and with the spiracles on the petiole placed between the middle and the apex; but differs from them all in the three basal segments of the abdomen being large and of equal length; the third with the apex raised; the other segments minute, hidden under

the third; there is no areolet in the fore wings; the scutellum is large, pyramidal, broadly keeled laterally; the median area has only the basal or middle areæ defined, and is laterally armed with large teeth or with a plate. Eyes large, widely distant from the base of the mandibles; behind them, at the top, the orbits are hardly developed and they are distinctly margined next to the eyes. Antennæ dilated and compressed towards the apex. Clypeus not distinctly separated from the face; foveate on the sides at the base; its apex rounded. Mandibles triangular, with only one apical tooth. Thorax large, with indistinct parapsidal furrows, the mesopleurae with a longitudinal furrow on the lower side. Abdominal petiole large, its apical half dilated; there are no gastrocœli. The last ventral segment is large; the ovipositor originates from its base. The base of the basal joint of the fore tarsi is largely curved, almost incised; the long spur of the tibiæ is curved.

The form of the abdomen—in having only three dorsal segments visible—resembles that of *Rothneyia*, but in other respects it is very different from that genus.

#### CHREUSA FULVIPES, sp. nov.

*Nigra; annulo flagelli antennarum, facie, clypeo, palpis, tegulis, scutello, postscutello, metanoto, basi petioli abdominisque apice late, flavis; pedibus fulvis; coxis posticis nigris; alis hyalinis, stigmate nervisque nigris.* ♀.

Long. 10; terebra 2 mm.

Antennæ as long as the body, black, the scape beneath and the 8-16th joints whitish yellow; the dilated apex brownish. Head slightly wider than the thorax, narrow; black; the part below the antennæ, the inner orbits—broadly below, narrowly above—pale yellow; the middle of the clypeus with a black mark. The face and clypeus

strongly punctured, sparsely covered with white hair ; the vertex strongly punctured ; the front deeply excavated. Thorax closely and strongly punctured, and thickly covered with white hair. The scutellum is black, broadly white round the sides and apex in front ; behind entirely white, as is also the postscutellum ; the scutellum is rugose and thickly covered with long, glistening white hair ; its apex, looked at from the front, is rounded ; its sides are strongly striolated ; there is no depression at its base, nor are there any parapsidal furrows. The median segment is obliquely depressed at the base ; the rest has a rounded slope ; at the base in the centre there is a short, broad area, with curved, obliquely narrowed sides ; from its sides two keels run to the apex of the segment. The entire segment is thickly covered with long, white hair, and is rugosely punctured ; the lateral spines are large, broadly dilated laterally, and have a round fovea on the top ; on the outside a keel runs from the spine to the apex ; the part below them is pale yellow and is closely transversely striated. The base of the propleuræ is bright fulvous-yellow ; the upper part is coarsely punctured ; the lower part stoutly longitudinally striated. The mesopleuræ coarsely punctured ; its base with a belt of fine punctures, the apex with a crenulated furrow ; there is an oblique furrow in the middle, and there is a wider, deeper one on the lower side, marked with keels ; the metapleuræ rugosely punctured ; their base depressed ; above at the base there is a band which is finely punctured. Mesosternum strongly punctured, deeply furrowed down the middle. The radial cellule is lanceolate at the base and apex ; the transverse basal nervure is interstitial ; the only transverse cubital nervure is curved ; the recurrent nervure is largely bullated in the middle, and is received

on the outer side of the transverse cubital. The four anterior coxae are pale yellow, black behind and on the sides above; the trochanters are pallid yellow; the hinder coxae entirely black, strongly punctured, and thickly covered with white hair. The petiole is as long as the second segment; the basal half, the sides and apex pale yellow; it is, on the apical half, strongly and closely punctured, and thickly covered with white hair; down the middle are two stout, longitudinal keels and, outside these, is a shorter and more slender one; the sides and apex of the second segment—the yellow on the apex not extending to the sides—and the sides of the third and its apex widely, pale yellow; the second and third segments are closely punctured; the sides below acutely margined; below they are pallid yellow.

CHREUSA LUTEA, *sp. nov.*

*Ferruginea; antennis nigris, basi rufo, medio albo-annulato; pedibus rufis, apice tibiarum posticarum tarsisque posticis nigris; alis hyalinis, stigmate nigro.* ♀.

Long. 7; terebra 2 mm.

Antennæ longer than the body, slightly thickened towards the apex, black; the scape and the second joint rufous; the sixth to ninth joints clear white, except on the top. Head distinctly wider than the mesothorax; ferruginous, the face pallid yellow; the vertex rather coarsely punctured; the front hollowed, its middle raised; the raised part bordered by stout keels. Face and clypeus punctured, the sides thickly covered with short, silvery hair; the apex of the clypeus rounded, clearly defined from the rest of the clypeus. Mandibles pallid yellow; the apex black, ending in two stout triangular teeth. Mesonotum closely punctured, and covered thickly with short microscopic pile; the sides of the pronotum projecting

at the apex, the projection ending in a blunt triangle, behind which is a smaller, more rounded, projection. Scutellum longer than it is broad, narrowed towards the apex ; the sides at the base stoutly keeled ; the basal depression wide and deep ; the median segment closely rugose, large ; the apex in the middle transversely striated ; in the centre there is only the supramedian and the lateral basal areae, the former being wide at the base and with the sides oblique ; and the posterior median which is rounded at the base and with almost straight sides ; the spiracular area is large, wide, rounded behind. The propleuræ pallid yellow ; stoutly, obliquely striated on the lower side ; the mesopleuræ coarsely punctured above, the lower stoutly, irregularly striolated ; at the sides of the mesosternum is a wide, deep, longitudinal furrow, marked throughout with stout, vertical keels. Legs rufous ; the apex of the hinder femora, of the hinder tibiæ more broadly and the tarsi, except the base, black. Wings hyaline, the stigma black, fuscous at the base ; the recurrent nervures largely bullated. The petiole is somewhat longer than the second segment, broad, narrow at the base ; down the middle are two distinct keels, which reach to the apex ; the sides are keeled to the spiracles, the keel in front of these diverging on their inner side. The second and third segments are closely punctured ; the sides, apex and ventral surface are pallid yellow.

ERADHA, *gen. nov.*

Entire body densely hairy. Clypeus depressed laterally; its middle projecting into a stout, triangular process. Eyes margined, the head not dilated behind them. Mandibles with two short blunt teeth at the apex. Mesonotum with two furrows down the middle. Scutellum large, flat, slightly longer than it is broad ; the sides stoutly

margined, the margins distinctly raised above the inner portion. Median segment without any distinctly limited areae, the keels at its base forming irregular reticulations. Metathoracic spiracles oval. Legs very densely hairy, the hinder claws pectinated. Arolet triangular, the transverse cubital nervures uniting at the top; the recurrent nervure is received immediately in front of the second transverse cubital nervure; the second transverse cubital nervure is obscurely bullated on the lower side, the recurrent above and below the middle. The basal half of the petiole is narrowed, the apical widened, the base of the widened part projecting into smooth, shining tubercles. Gastrocœli transverse, shining, moderately deep, placed at the extreme edge of the segment. There are seven segments on the abdomen, which has no ventral keel or fold.

Belongs to the section *Amblypygi* of Wesmael, judging from the fact of there being no longitudinal fold on the ventral surface of the abdomen in the ♂, which is the only sex known. It is very distinct from either *Trogus* or *Amblyteles*. The flat scutellum strongly keeled laterally, the densely hairy body, the median segment without areae, the triangular arolet and the pectinated claws sufficiently distinguish it from these and from any other described genus.

#### ERADIHA TRICHIOSOMA, sp. nov.

*Nigra; orbitis oculorum, tibiis tarsisque anterioribus basique tibiarum posticarum late pallide testaceis; alis fusco-hyalinis, nervis stigmatisque nigris.* ♂.

Long. 16-17 mm.

Antennæ entirely black; stout; the joints of the flagellum slightly dilated at their apices; the scape thickly covered with longish, fuscous, the flagellum with a stiff microscopic, pile. Head black; the upper two-thirds of

the outer orbits narrowly, and the inner entirely, lined with pale testaceous; the line on the inner orbits being wider and dilated in the middle. Face and clypeus coarsely punctured all over, except on the sides of the clypeus which are deeply and widely excavated and smooth; the raised central part of the clypeus is narrowed towards the apex and almost triangular in shape. Except at the base, the mandibles bear large, deep punctures and from the middle to the apex, are covered with long, golden fulvous hair. Thorax entirely black, thickly pilose, that on the pleuræ and median segment being longer and paler than the hair on the mesonotum. The mesonotum strongly and almost uniformly punctured; the scutellum more coarsely and rugosely punctured, at its sides running indistinctly into reticulations; its apex and the greater part of the postscutellum rufo-ferruginous. The median segment has no distinct areæ; the base in the centre has some stout, irregular reticulations; and, on either side of this, is a large, irregular, stoutly bordered area; the entire segment is very roughly rugose and, especially at the sides, thickly covered with longish, white hair. The pronotum behind is lined with a pale rufous band; it is strongly punctured; the punctures on its base less rugose, more widely separated; the mesopleuræ, except in the middle behind, strongly punctured. The centre of the propleuræ is closely, the base of the mesopleuræ is more widely, crenulated; the metapleuræ coarsely, rugosely punctured; behind the spiracles is a smooth, deep, semicircular depression, from the apex of which a curved furrow runs to near the apex of the posterior coxæ. Legs black; the four anterior tibiæ and tarsi and the base of the hinder tibiæ widely pale testaceous; the posterior coxæ are closely punctured except in the middle behind. The triangular areolet receives the

recurrent nervure in its apex, almost touching the transverse cubital nervure. Abdomen strongly punctured, thickly covered with white hair; the second segment entirely and the apical two-thirds of the third rufotestaceous; at the base of the dilated part of the petiole is a smooth, shining tubercle.

SCALLAMA, *gen. nov.*

Areolet oblique, small, appendiculate to the middle. Antennæ stout, short; the third joint elongate, nearly twice the length of the fourth. Mandibles at the apex with one longish apical tooth. Palpi short and thick. Legs short and thick, the femora dilated; the four hinder tibiæ with two spurs; the hinder large, the outer much larger than the inner, slightly curved, lanceolate; the hinder tarsi thickly covered with stiff, bristle-like hairs; the claws large, thick at the base, the apex hook-shaped, curved, sharp. Mesopleuræ largely projecting in the middle, the base and apex with an oblique slope. Metathoracic spiracles oblique, more than twice as long as broad, rounded at the base and apex. Scutellum flat, not keeled laterally, becoming gradually narrowed towards the apex. Postscutellum large, smooth, flat, depressed at the apex. Petiole broad at the base, becoming gradually wider towards the apex; the other segments flat; the spiracles small, round, situated quite close to the base.

The eyes are large, but do not reach to the base of the mandibles. The head is sharply narrowed behind the eyes, and is not much developed there; the clypeus is not separated from the face at the top on the inner side, the eyes have a distinct, curved incision; there are no furrows on the mesonotum, nor keels on the median segment, except on the sides; the petiole becomes gradually dilated from the base (which is itself broad) to the apex.

The transverse median nervure is received distinctly in front of the basal ; the first recurrent nervure is received shortly behind the middle of the cellule ; the areolet may be absent.

Comes near *Metopius* and *Bassus* in some respects—in the thickened legs for instance—but differs from them in the abdomen not being so broad at the base. Its characteristics are the thickened legs, the mesothorax dilated in the middle, the large flat scutellum, and the distinctly petiolated areolet.

The genus contains two sections. One represented by *S. trilineata*, having a distinct appendiculated areolet, and a keel outside the metapleural spiracles ; the other represented by *S. crassipes*, having no areolet and a keel on the outer and inner side of the spiracles. Unfortunately I have no females, both the species being represented by males.

SCALLAMA TRILINEATA, *sp. nov.*

*Fulva, nigromaculata ; alis fulvis ; stigmate fulvo-testaceo, nervis testaceis.* ♂.

Long. 11-12 mm.

Antennae thick, dark fulvous ; the scape yellowish beneath ; covered with longish, pale hair ; the flagellum thickly covered with short, black hair, and becoming gradually and slightly thicker towards the apex. Head deep black ; the clypeus testaceous ; the mandibles and palpi yellow ; the mandibular teeth black and piceous ; the face strongly and uniformly punctured ; thickly covered with long, glistening white hair ; the front and vertex thickly covered with long, brownish hair, which is longer behind the ocelli ; they are covered with shallow punctures ; in front of the ocelli is a triangular depression. In one specimen the eyes have a distinct greenish tint.

Mesonotum shining; thickly covered with short, white pubescence; dark rufous; a broad black band down the centre of the middle lobe; the lateral lobes broadly black at the apex. The scutellum very smooth and shining; thickly covered with long, fuscous hair; the base deep black; deeply depressed, the depression slightly dilated backwards at the sides. The median segment has a gradually rounded slope to the apex, is very smooth and shining, and covered with long, white hair; the base is blackish, and, in its centre behind the postscutellum, is a deep depression, slightly longer than broad, transverse at the base, rounded at the apex; the apex in the middle has a larger depression, longer than broad, rounded at the base, the sides slightly roundly curved inwardly. Propleuræ very smooth and shining, black, broadly rufous at the top; the mesopleuræ shining, obscurely punctured, thickly covered with long, white hair; black, as is also the sternum; in the centre is a curved rufous band, broad at the base, becoming narrowed towards the apex, which ends above the middle coxæ. Legs stout, short; the femora thickened; the tibiæ and tarsi stout, dark rufous; the anterior tibiæ and tarsi obscure yellowish; the fore femora slightly, the four hinder more broadly, black at the base; the apices of the four hinder tibiæ broadly and the hinder tarsi, black; the calcaria rufous; the hinder claws black at the apex. Wings fulvo-hyaline; the costa, nervures and stigma rufous; the nervures at the base darker; the petiole of the areolet is as long as it; its basal nervure is straight, oblique, the apical curved; the recurrent nervure interstitial, and is sharply obliquely curved above the middle; the apex of the curve emitting a short branch from the outer angle. Petiole very smooth and shining, black; the apex broadly rufous; the second segment entirely black; the third black, except at the

sides ; the others are more or less black ; the ventral segments coloured like the dorsal.

The wings vary in tint ; as does the amount of black on the thorax, legs and abdomen.

SCALLAMA CRASSIPES, *sp. nov.*

*Nigra; antennis rufis; abdominis medio scutelloque ferrugineis; pedibus rufis; coxis, trochanteribus femoribusque posterioribus nigris; alis fuso-violaceis, stigma nigro.* ♂.

Long. 13-14 mm.

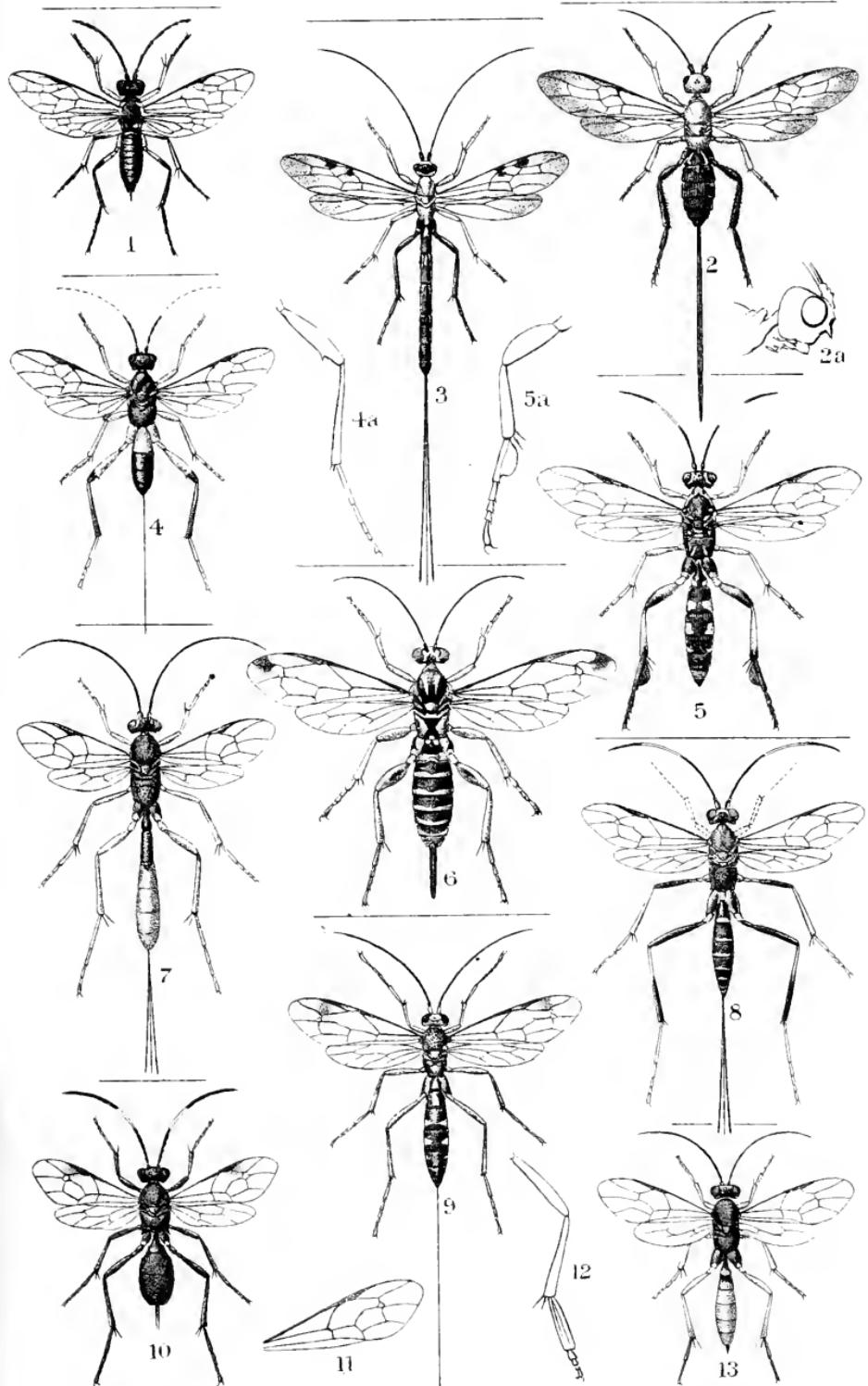
A larger species than *S. trilineata*, from which it may be known by the pleuræ, meso- and meta-notum being entirely black, and by the absence of the areolet.

Antennæ rufous, slightly darker towards the apex, thickly covered with microscopic hair. Head black, the face thickly covered with long, fulvous hair, the occiput thickly with shorter, black hair ; the face strongly punctured. Thorax shining ; the tegulæ, scutellum and post-scutellum rufous ; the mesonotum thickly covered with fuscous, the scutellum with longer fulvous, hair ; the sides of the metanotum with long, pale hair. Pleuræ shining, impunctate ; the mesopleuræ broadly projecting. The anterior legs rufo-fulvous, the middle darker, more rufous in tint, their femora broadly infuscated at the sides ; all the coxæ and trochanters black ; the hinder femora black ; the hinder tibiæ rufous on the basal half ; the apical infuscated ; the tarsi fuscous. Wings fulvous-smoky ; the costa, stigma and nervures dark testaceous ; the second transverse cubital nervure is obsolete ; the recurrent nervure is received shortly in front of the transverse cubital nervure. Abdomen dark rufous ; the basal two-thirds of the petiole and the apical two segments black, thickly covered with pale hair.

## EXPLANATION OF PLATE 3.

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Fig. 1. *Rethra carinata* ♀.  
„ 2. *Chaoleta lamellata*. 2a. head from the side.  
„ 3. *Bracon leptogaster* ♀.  
— „ 4. *Wroughtonia cornuta*. 4a. hind leg.  
„ 5. *Eleanta latitarsis* ♀. 5a. hind leg.  
„ 6. *Chrysopimpla ornatipes* ♀.  
„ 7. *Trathala striata* ♀.  
„ 8. *Eugalta spinosa* ♀.  
„ 9. *Lytarnes maculipennis* ♀.  
„ 10. *Rothneyia annulicornis* ♀.  
„ 11. *Meyra villosa* wing.  
„ 12. *Sunoxa purpureifrons* hind leg.  
„ 13. *Bosmina spinipes* ♀.





Hymenoptera Orientalia, or Contributions  
to the Knowledge of the Hymen-  
optera of the Oriental Zoological  
Region. Part IX. The Hymen-  
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Section I.

BY

P. CAMERON.

MANCHESTER :  
36, GEORGE STREET.

—  
1900.

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XV. Hymenoptera Orientalia, or Contributions to the knowledge of the Hymenoptera of the Oriental Zoological Region. Part IX.

The Hymenoptera of the Khasia Hills. Part II. Section I.

By P. CAMERON.

[Communicated by J. Cosmo Melvill, M.A., F.L.S.]

Received October 10th, read October 31st, 1899.

MUTILLIDÆ.

The Khasia *Mutillidæ* in the collection are all males, the native collectors apparently gathering only winged insects.

A. THE GROUP OF *M. SEXMACULATA*. Large species, black, with ferruginous abdomen, and with the scutellum gibbous; the abdominal segments fringed with rufous hair.

✓ *MUTILLA EMPIRICA*, sp. nov.

*Nigra*; dense albo-pilosa, vertice mesonotoque longe nigro-pilosus; abdomine ferrugineo, basi apiceque nigris; alis violaceis ♂

Long. 18 mm.

Scape of antennæ thickly covered with long white hair, grooved beneath; the flagellum opaque, covered with a microscopic pile. The front and vertex covered

A

October 9th, 1900.

closely with large deep punctures and thickly with long dark fuscous hair; between and below the antennæ is a tuft of long pale hair. The face and clypeus smooth and shining; the sides and the lower orbits with a dense band of silvery pubescence. Mandibles black; their basal half thickly covered with long pale hair. On the upper half of the face in the centre is a stout keel. Pronotum coarsely punctured; the propleurae bearing stout oblique keels; the apex smooth. Mesonotum shining, bearing large deep punctures all over and sparsely covered with long black hairs; the two furrows are wide and deep. Scutellum large, pyramidal, and covered with large deep punctures, the top rounded, blunt, smooth and shining; post-scutellum smooth in the middle, the sides punctured; both are covered with long black hair. Metanotum reticulated, thickly covered with silvery pubescence, the basal third of the area wide; the apex rounded; the middle obliquely narrowed. The raised central part of the mesopleurae coarsely punctured and thickly covered with long white hair. Metapleuræ reticulated; the middle smooth. Legs thickly covered with long white hair; the spurs pale. Wings deep violaceous; the basal two cubital cellules streaked with hyaline in the middle; the second and third cubital cellules are almost equal in length on the top; the first recurrent nervure is received shortly, but distinctly, beyond the middle; the second near the base of the apical fourth. Abdomen ferruginous; the petiole and apical segment black; the petiole is strongly and deeply punctured and covered with long white hairs; the second segment is sparsely punctured, almost impunctate in the middle; the apices of the second to sixth segments fringed with bright golden, the last with long black hair, except in the middle, which is smooth and shining. The base of the under side of the petiole has

a large, elongate depression in the middle; the keel is straight throughout. The sides of the hypopygium are raised on the apical half, the raised part depressed at the base; in the centre at the apex are two shorter keels, also dilated at the apex.

Comes near to *M. perdita* and *M. cressida*; the former may be known from it by having the keel on the petiole dilated at the apex and by having the four apical abdominal segments black; the latter is more stoutly built and may be known by the second cubital cellule being clearly longer above than the third and by the median segment bulging out in the middle.

MUTILLA ANTERA, sp. nov.

*Nigra, abdomine ferrugineo, basi apiceque nigris, basi scutelli medio canaliculato; alis violaceis.* ♂.

Long. 20 mm.

Belongs to the group of *M. dimidiata* Lep., having the scutellum raised and the abdomen for the greater part ferruginous; but may be easily known by the base of the scutellum having a wide and deep depression in the middle.

- Scape of the antennæ covered with long white hair; the flagellum with a pale pile; the third and fourth joints almost equal in length, but, if either, the third is the shorter. Head coarsely rugosely punctured, a large smooth space on either side behind the ocelli. Clypeus broadly projecting in the middle, its apex slightly waved. Mandibles thickly covered with long, pale fulvous hair at the base; the lower tooth is much shorter and more rounded than the upper; the palpi black. Pronotum rugosely punctured, thickly covered with long fuscous hair; the propleurae at the base rugosely punctured; the middle depression bearing seven stout, distinctly separated keels; the apex is smooth.

Mesonotum shining, thickly covered with black hairs, and bearing all over large deep punctures; the two central furrows are deep. Scutellum rugosely punctured, thickly covered with long black hairs; the upper portion of the middle basal part smooth, impunctate, shining; its lower three-fourths widely and deeply furrowed, the furrow narrowed and rounded above. Post-scutellum finely punctured in the middle, the sides rugose. Mesopleuræ coarsely punctured, thickly covered with long grey hair. Metapleuræ, except at the base, strongly reticulated. Legs thickly covered with white hair; the calcaria white, the tibial spines rufous. Wings deep violaceous; the second cubital cellule shorter at the top, longer at the bottom, than the third; the first recurrent nervure is received shortly beyond the middle; the second near the base of the apical fourth of the cellule. Median segment thickly covered with long white hair; reticulated, the reticulations on the apex smaller than on the base; the central area broad at the base, much narrowed towards the apex; the sides at the base parallel, before the middle curved; the apex is rounded; in the middle at the base is a longitudinal keel. Abdomen dark ferruginous, the basal and apical segments black; the petiole bearing large deep punctures, except in the middle; the apex is rufous and more finely punctured; the ventral keel is straight, not dilated at base or apex. The pygidium is covered with long black hairs, except in the middle, which is smooth.

#### MUTILLA PERDITA, *sp. nov.*

*Nigra, dense albo-pilosa, mesonoto nigro-hirto; abdominis segmentis 2-is et 3-is rufis; alis violaceis, basi fere hyatinis.* ♂.

Long. 22—23 mm.

Scape of antennæ covered with long, pale fulvous

hair; the third and fourth joints equal in length. Front and vertex coarsely and deeply punctured, except at the sides of the ocelli; the vertex sparsely covered with long fuscous hair; the front, inner orbits, and sides of the clypeus densely with silvery pubescence. Clypeus broadly carinate, the sides of the keel oblique; the apex transverse. Mandibles black, the base thickly covered with depressed pubescence; on the under side near the base is a stout, projecting tooth. Pronotum with a band of white pubescence; the pleuræ sparsely pilose, mixed with fuscous hair; coarsely punctured above; the middle, except at top and bottom, with stout, widely separated keels; the apex is smooth. Mesonotum deeply and strongly punctured, and covered with longish black hairs; the furrows are deep; in the middle at the base is a smooth, shining, longitudinal keel. Scutellum rugosely punctured; the punctures large and deep; the apical half in the middle flat, smooth, and shining, rounded at the apex; the basal hollowed, the depression narrowed at the top; the depression at the base is smooth and shining. Post-scutellum finely rugose, slightly depressed in the middle. The basal half of the median segment is thickly covered with depressed silvery pubescence, which hides the surface; the middle area extends to the end, and is widened at the base; the apex has an oblique slope and is thickly covered with long pale hair. Mesopleuræ coarsely punctured, covered with long white hair; the base and apex smooth. The basal half of the metapleuræ smooth, except for some large, deep punctures on the lower part in the middle; the apex is closely and strongly reticulated. Legs thickly covered with long white hair; the calcaria pale. Wings deep violaceous, almost hyaline at the base; the first recurrent nervure is received at the base of the apical third; the second shortly beyond the middle. Abdomen

black, thickly covered with white pubescence; the extreme apex of the first, and the whole of the second and third segments ferruginous; the petiole coarsely punctured, except at the apex; the keel is short and stout; beneath, it is slightly and roundly curved upwards; the second segment is rather strongly, but not closely, punctured, except for a somewhat triangular smooth space at the side near the apex; the pygidium coarsely punctured, thickly covered with long black hair.

**B. THE GROUP OF M. PANDARA.** Species with the thorax black; the abdomen more or less rufous at the base, and with the segments thickly fringed with whitish hair; the scutellum not gibbous.

MUTILLA PANDARA, *sp. nov.*

*Nigra, petiolo segmentoque 2-0 basi late rufis; alis fusco-violaceis, stigmate nervisque fuscis.* ♂.

Long. 15 mm.

In Bingham's arrangement comes into "A. a. b<sup>1</sup>. Wings dark fuscous, with a purple effulgence. a<sup>2</sup>. Basal two abdominal segments red," which includes only *M. unifasciata* Sm. It comes near to *M. aglaia* here described; but may be known from it by the petiole being entirely red; by the base of the second segment having a distinct oblique slope; by the base of the pronotum having two rows of irregular broken keels, instead of an area enclosed by stout keels; by the first recurrent nervure being received in the middle, and the second distinctly beyond the middle; and by the mesopleuræ being much more distinctly punctured and reticulated.

Scape of the antennæ punctured, thickly covered with long pale hair; the lower side sharply keeled; the

flagellum covered with a pale down; the apical joints more or less brownish beneath; the third and fourth joints are almost equal in length; the front and vertex sparsely covered with long black, the antennal region and the clypeus with long white hair. The front and vertex are coarsely rugosely punctured. The upper part of the clypeus is roundly convex, slightly and gradually widened towards the apex; the apex is depressed, distinctly margined laterally, and marked before the apex with a distinct transverse keel, which projects roundly backwards in the middle, there being also a raised part at the apex of this projection. Mandibles black, piceous before the apex; the hairs are long and pale fulvous. Prothorax rugosely punctured, except at the base and apex of the pleuræ; the mesopleuræ rugosely punctured, except in the middle at the base; behind, the punctures run into reticulations; the metapleuræ coarsely reticulated on the apical half; the middle and the upper part of the basal portion smooth; the lower part of the base with long, shallow, irregular punctures. Legs thickly covered with long white hair; the calcaria and spines white; the claws rufous; the base of the incision on the anterior tarsi is also rufous. Wings uniformly brownish, with a slight, but distinct, violaceous tinge; the nervures are testaceous; the second and third cellules at the top are equal in length; below, the second is about one-third longer than the third; the second cellule receives the recurrent nervure in the middle; the second recurrent is received shortly beyond the middle. The petiole and the second abdominal segment, except at the apex, are ferruginous, closely punctured and sparsely covered with long white hair; the petiole is short, scarcely one-half the length of the second segment, broad, narrowed at the base; the second segment is obliquely raised towards the middle; at the base the slope is longer

and more oblique than it is at the apex ; the third, fourth, and fifth segments are thickly covered on the apical half with pale fulvous hair ; the hair on the apex of the second segment and on the apical ones is black ; the pygidium has a broad, smooth space on the middle of the apical half, this part being keeled down the middle.

MUTILLA ISORA, *sp. nov.*

*Nigra, abdominis dimidio basali rufo, alis fusco-violaceis, nervis testaceis ; tegulis testaceis.* ♂.

Long. 14 mm.

Comes nearest to *M. schlettereri* from Burma and Sikkim, with which it agrees in coloration and in having the front and vertex striated, but may be known from it by having the median segment coarsely, not delicately, reticulated ; by the punctures on the scutellum not being "fine and delicate" ; and by the tegulae being entirely testaceous, not testaceous along their outer margin only.

The antennæ distinctly tapering towards the apex ; the scape covered with long white hair ; the flagellum densely with short stiff pubescence. The front and vertex sharply and distinctly striated ; in front of the anterior ocellus is a deep, somewhat triangular, depression ; the outer orbits are strongly striated ; the striæ intermixed with punctures ; clypeus smooth, shining ; indistinctly keeled in the middle. The front is covered with long fulvous, the clypeus with long silvery, hair ; the vertex more sparsely with longer, pale fuscous hair. Mandibles rufous in the middle. Thorax black ; the pro- and mesothorax thickly covered with fuscous hair ; the hinder edge of the pronotum bears a thick belt of fulvous pubescence. Mesonotum strongly and deeply punctured ; the parapsidal furrows deep, distinct, narrowed at the base. Scutellum

distinctly punctured, but not so strongly as the mesonotum; its hair longer and paler. Metanotum strongly and regularly reticulated all over; its base covered with fulvous pubescence; its basal half is rounded; its apex has an oblique slope. Propleuræ impunctate, but marked with four stout keels on the lower part and a narrower one in the middle; the mesopleuræ strongly but not deeply punctured, and thickly covered with long, pale fulvous hair; the metapleuræ strongly reticulated, except for a smooth oblique band in the middle. Legs thickly covered with white hair; the spines and calcaria white. Wings fusco-violaceous; the stigma and nervures dark testaceous; the second cubital cellule at the top is distinctly shorter than the third, at the bottom about equal to it in length; it receives the recurrent nervure shortly, but distinctly, beyond the middle; the second is received at the base of the basal third. Abdomen black; the basal three segments entirely ferruginous; the second to fifth segments fringed at the apex with long, pale fulvous hair; the apical thickly with black hair. Petiole stout, becoming gradually wider towards the apex; in length about half that of the second; both are rather strongly, but not closely, punctured; the pygidial area is strongly punctured, except in the middle. The petiole beneath is strongly punctured; in the middle the keel is straight throughout; rounded at the base, oblique at the apex; the third segment is black, rufous at the base and apex.

#### MUTILLA RESPONSARIA, *sp. nov.*

*Nigra, abdominis segmentis primis tribus late rufo-ferrugineis; alis fumatis, basi fere hyalinis; tegulis testaceis. ♂.*

Long. 11 mm.

Head coarsely rugosely punctured; sparsely covered

with longish pale hair; the labrum and clypeus smooth and shining; mandibles entirely black; at their base on the lower side is a stout tooth, rounded at the apex. The scape of the antennæ punctured, sparsely covered with longish white hair; the flagellum is densely covered with short stiff pubescence. Thorax thickly covered with white hair; the pronotum has a broad band of pale pubescence; above it is stoutly punctured; the pleuræ smooth, except for a few obscure striæ. Mesonotum strongly and deeply punctured; thickly covered with fuscous hair, and with two deep furrows in the middle; the scutellum is more strongly and irregularly punctured; the post-scutellum is strongly aciculated. Median segment strongly reticulated; the central basal area is longer than it is broad; widest at the base, its apex rounded and slightly dilated at the apex. Propleuræ at the apex with some indistinct striæ; the middle of the metapleuræ punctured; the apex of the metapleuræ strongly reticulated; the base on the lower side obscurely punctured. Wings fuscous, with a faint violaceous tinge; the base more hyaline; the nervures are dark fuscous; the second cubital cellule is slightly shorter at the top, longer at the bottom than the third; the first recurrent nervure is received in the middle; the second at the base of the apical third. Legs thickly covered with white hair; the calcaria pale; the tarsal spines rufous. The basal three segments are ferruginous; the petiole is closely punctured, covered with long white hair; the apical halves of the third, fourth, and fifth segments thickly covered with pale fulvous hair; the apical segments covered with long black hairs; strongly punctured, except on the middle of the apical half. The petiole, on the under side in the middle, is strongly and deeply punctured; there is no distinct keel in the centre, which is straight.

## MUTILLA ONARA, sp. nov.

Long. 16—17 mm. ♂.

Agrees in coloration with *M. honorata*—black, with the basal three segments of the abdomen red, and the third segment thickly covered with pale fulvous pubescence—but may be known from it by being larger, by the central area on the median segment being much broader and not nearly so much narrowed at the apex, and by the basal half of the metapleuræ being impunctate.

Scape of antennæ shining, sparsely covered with long white hair; the flagellum with a dense microscopic pile; the third joint is slightly shorter than the fourth. Front and vertex deeply rugosely reticulated; the front broadly, in the middle thickly, covered with long white hair. Clypeus very smooth and shining; its sides and apex raised. Mandibles at the base thickly covered with long, pale fulvous hair; palpi black, covered with short hair. The upper edge of the pronotum has a broad band of silvery pubescence, and is strongly rugosely reticulated; the pleuræ, except above, have in the middle stout, somewhat irregular, longitudinal striæ. Mesonotum coarsely, irregularly, rugosely punctured and reticulated, more finely and closely at the base than at the apex; the hair is long, black and sparse; there are four longitudinal furrows, the inner being the shorter. Scutellum roundly convex, not much raised; rugosely punctured, sparsely covered with long black hairs; the post-scutellum rugose. Median segment thickly covered with long white hair; largely reticulated; the central area wide, in length scarcely twice the width at the base; the apex slightly narrowed; the apex itself with the sides oblique. Mesopleuræ closely rugosely punctured, covered with white hair; the basal half of the metapleuræ smooth; the apical largely reticulated. The sides of the mesosternum irregularly stoutly

striated; the middle more closely, indistinctly, transversely striated. Legs thickly covered with white hair; the calcaria pale fulvous. Wings deep violaceous, slightly paler at the base; the first and second cubital cellules are equal in length above; the recurrent nervures are received shortly beyond the middle. The basal two segments of the abdomen and the basal half of the third are rufous; the petiole is rugosely punctured; the basal keels are stout; the ventral keel is slightly curved upwards beneath, its apex is slightly more produced than the base; it is smooth and shining. The petiole is covered thickly with long, the second segment more sparsely with shorter, white pubescence; the apical half of the third segment is covered thickly with pale fulvous, depressed pubescence; the hair on the apical segments is black; the pygidium is closely punctured; in the middle on the apical half is a smooth line.

MUTILLA HONORATA, *sp. nov.*

*Nigra, abdominis basi late rufo; capite thoraceque reticulatis; alis violaceis; tegulis nigris.* ♂.

Long. 15 mm.

Antennæ black; the scape covered with long fuscous hair; the flagellum thickly with a short stiff pile, which is black on the basal joints, paler on the apical; the third joint is a little longer than the fourth. Head thickly covered with long fuscous, the oral region with shorter silvery hair; the front coarsely reticulated; the vertex behind the ocelli coarsely punctured. Clypeus smooth and shining; its apex obliquely depressed, glabrous. Mandibles at the base covered with long white hair. The pronotum covered with depressed, dark silvery pubescence; its upper part coarsely rugosely punctured;

the propleuræ depressed and marked with six stout longitudinal keels. Mesonotum strongly reticulated all over, and thickly covered with longish black hair; the parapsidal furrows deep, smooth and shining; they originate shortly before the middle and do not reach to the apex. Scutellum roundly raised, coarsely and deeply punctured all over and covered at the base with blackish, at the apex with longer fuscous hair. Post-scutellum opaque and granular in the middle; the sides irregularly rugosely punctured; like the apex of the scutellum it is covered with long pale hair. Median segments stoutly reticulated all over; the base covered thickly with depressed grey pubescence, the rest of it more sparsely with long pale hairs: the basal median area large, about three times as long as broad; the apical two-thirds gradually narrowed and with the apex lanceolate. Mesopleuræ coarsely and deeply punctured, except on the lower part of the base, which is glabrous; the rest and the sternum thickly covered with longish grey hair. Metapleuræ above coarsely reticulated; there is a smooth space below the middle; the part under this is punctured. Mesosternum irregularly punctured; in the centre at the base is a smooth, somewhat triangular, depression. Legs thickly covered with long white hairs; the spines and calcaria pale. Wings fusco-violaceous; the nervures dark fuscous; the second and third cellules at the top are equal in length; below, the second is longer than the third; the first recurrent nervure is received a short distance beyond the middle, the second at the base of the apical third of the cellule. The basal three segments of the abdomen are ferruginous; the petiole becomes gradually wider towards the apex, and is not half the length of the second segment; it is strongly, but not closely, punctured; at the base on either side is a stout,

somewhat triangular, oblique tooth ; the part behind this projects ; its ventral keel is stout, and is roundly depressed beneath. The second segment, except in the middle, is closely punctured ; the petiole is covered with long, the the second segment with shorter, pale hair ; the third thickly, on the apical half, with depressed, dark fulvous pubescence ; the remaining segments are covered thickly with long black hair ; the pygidium is thickly covered with long black hairs all over. The tegulae are black, very smooth and shining, and sparsely covered with pale hairs.

Comes nearest to the Burmese *M. schlettereri* Magr., and *M. stephani* Magr., but is abundantly distinct.

**MUTILLA ELMIRA, sp. nov.**

Long. 17 mm. ♂.

Comes into Bingham's "Section *b*" on p. 9 and *a*. Basal two abdominal segments red." From *M. unifasciata* it may be known by the scutellum not being "prominent, raised"; by the head and thorax being thickly, not "very sparingly, covered with long, soft hairs"; by the basal two segments being thickly pilose, not merely "very slightly pubescent."

Antennæ stout : the scape thickly covered with long pale hairs ; its apex rufous on the under side laterally : the flagellum stout, thickly covered with a short, stiff, black pubescence and with a pale down. Head coarsely, deeply rugosely punctured, and thickly covered with silvery hair, which is thicker on the front ; below the antennæ it is longer. Antennal tubercles large, smooth and shining. Mandibles rufous in the middle, at the base thickly covered with long fulvous hair. Pro- and meso-thorax thickly covered with pale hair ; on the edge of the

pronotum it is thicker, more depressed, and pale fulvous : on the scutellum longer and darker. Mesonotum deeply and coarsely punctured, the two furrows on the hinder half are wide and deep ; there is an indistinct keel on the middle at the base. Median segment coarsely reticulated, thickly covered with pale fulvous pubescence : its apex has a gradually rounded slope ; the middle basal area is about four times as long as the width at the base ; at the base its sides are straight, then oblique on the widened part. Propleuræ, except above, smooth ; the middle raised part of the mesopleuræ bearing shallow punctures and thickly covered with fulvous pubescence : the apex of the metapleuræ reticulated. Legs thickly covered with long pale hair : the calcaria white. Wings violaceous ; the nervures black ; the first cubital cellule at the top is almost double the length of the third ; the recurrent nervure is received near the base of the apical third. Abdomen black, thickly covered with long white hair ; the basal two segments ferruginous ; the apex of the pygidial area is depressed, with a distinctly raised border. The keel on the ventral surface of the petiole is straight, not dilated at base or apex ; the sides are strongly punctured ; the epipygium is strongly punctured and thickly covered with long black hairs. Tegulæ smooth, large, black with a plumbeous hue ; the base and inner side covered with long pale hairs.

Comes near to *M. honorata* here described ; but that has the third abdominal segment red and thickly covered with white pubescence ; the top of its head is more rugosely punctured and more distinctly reticulated in the middle ; the first cubital cellule at the top is not much longer than the third and the abdominal keel is dilated at the base and apex.

*MUTILLA AGLAIA, sp. nov.*

*Nigra, abdominis segmento 2-o rufo; alis fusco-violaceis.* ♂.

Long. 13 mm.

Comes near to *M. lyrata*, but may be known from it by having only the second abdominal segment red; by the second and third cubital cellules being equal in length at the top, whereas in *M. lyrata* the third is distinctly shorter than the second; by the apex of the radius being less sharply angled; and by the propleuræ wanting the keels.

Head densely covered with white hairs; the front and vertex rugosely punctured, the oral region smooth. Mandibles black, with a red band before the middle; the palpi fuscous, mottled with testaceous. Thorax covered with long fuscous hair; the pronotum and mesopleuræ also with a silvery pubescence. Mesonotum covered all over with large, deep punctures; its two furrows deep; in the middle at the base is an indistinct longitudinal keel. Scutellum coarsely, deeply and irregularly punctured; the punctures longer and more irregular in the middle at the base. Median segment reticulated all over; the basal central area elongated and somewhat triangular at the apex. Pro- and meso-pleuræ smooth; the apex of the metapleuræ reticulated. Legs black; thickly covered with white hair; the calcaria white. Wings smoky-fuliginous, with a violaceous tinge; the nervures, except the apical ones, are deep black; the second cubital cellule at the top is slightly shorter than the third; and is there slightly longer than the space bounded by the recurrent and the second transverse cubital nervures. Abdomen black, the segments thickly fringed with white hairs; the second segment is entirely ferruginous; the petiole blackish, broadly brownish at the

apex; the apical segment above is smooth in the middle; the sides punctured and pilose.

MUTILLA LYRATA, *sp. nov.*

*Nigra, abdominis medio rufa; alis fusco-violaceis.* ♂.

Long. 13 mm.

Comes into Bingham's "Section A. Thorax black,  $a^1$ . Abdomen more or less red; and  $b^1$ . Wings dark fuscous, with a purple effulgence."

Antennæ black; the scape thickly covered with long white hair and deeply punctured; the flagellum black; the third joint at the apex and the fourth at the base marked with brown; as are also the apical joints, which are distinctly narrowed. Head thickly covered with long, glistening white hair. Front and vertex deeply rugosely punctured; the oral region smooth and shining; the mandibles black, shining, rufous near the middle; the palpi black, thickly covered with white hair. Thorax entirely black; the pronotum and mesopleuræ thickly covered with long white hair. Mesonotum shining, uniformly covered with large deep punctures, sparsely covered with black hairs; the scutellum is similarly punctured, but with the punctures closer together, and it is rather thickly covered with long pale hair. Median segment reticulated, the reticulations larger at the base, which is thickly covered with white pubescence. The propleuræ coarsely punctured in the middle above; on the apex near the middle are three stout longitudinal keels. Mesopleuræ, broadly in the middle, punctured and thickly covered with white hair; the apex of the metapleuræ reticulated. Legs thickly covered with white hair; the calcaria and tarsal spines pale. Wings fusco-violaceous; the costal cellule and an oblique cloud in the first cubital

cellule hyaline. Abdomen black; the second and third segments ferruginous; the segments thickly fringed with white hair.

MUTILLA LATHONIA, *sp. nov.*

*Nigra, abdominis segmentis 2-0 et 3-0 rufis; dense albo-pilosus; alis hyalinis, basi fusco. ♂.*

Long. 12 mm.

Scape of antennæ thickly covered with silvery hair; the flagellum thick, covered with a pale pile. Front and vertex closely, strongly rugosely punctured; the vertex sparsely, the front thickly covered with silvery pubescence. Face and clypeus smooth and shining; the latter turned up at the apex. Mandibles at the base thickly covered with long white hair; the middle obscure piceous; the palpi black, covered with white pubescence; the tooth on the lower side of the mandibles near the base is large. Thorax thickly covered with white pubescence; the mesonotum uniformly covered with large deep punctures. Scutellum flatly rounded, punctured like the mesonotum, and covered with long white hair. Metanotum reticulated; its apex with an oblique slope, rounded above; the middle area has the basal fourth wider than the rest; the narrowed part is about three times as long as wide. Propleurae smooth, except above and at the apex; the middle of the mesopleurae closely punctured and densely covered with pale hair; metapleurae smooth, its apex reticulated. Legs thickly covered with white hair; the spurs pale, the spines rufous. Wings violaceous, the base fuscous; the first cubital cellule is shortly, but distinctly longer than the third; the first and second recurrent nervures are received shortly beyond the middle. Abdomen black; the second and third segments ferruginous; the apex of the petiole is fringed with golden hair; the others with silvery hair;

the basal two segments covered, but not closely, with large deep punctures ; the pygidium is closely punctured, with a smooth line down the middle ; the ventral keel is straight ; the hypopygium is closely punctured, with a narrow transverse space behind the middle.

Comes into Bingham's "Section  $\beta^1$ . (p. 9)" and forms a new group ; "Abdominal segments 2 and 3 red," after his  $\alpha^2$ .

C. THE GROUP OF M. LEPCHA. Head, thorax, and abdomen black, thickly covered with pale fulvous hair.

MUTILLA LEPCHA, *sp. nov.*

*Nigra, dense fulvo-hirta; alis fusco-violaccis; basi fulvo; tegulis testaceis.* ♂.

Long. fere 16 mm.

Antennæ short, thick ; the last joint distinctly tapering towards the apex ; the scape covered with long white hair ; the base of the flagellum thickly covered with short, stiff, pale pubescence ; the apical joints with a pale pile. The front and vertex bearing all over stout, deep, round punctures ; the vertex is sparsely, the front thickly covered with fulvous hair ; the face and clypeus thickly with longer, paler fulvous hair. Mandibles rugose at the base, and covered there with long fulvous hair. Thorax entirely black ; thickly covered with bright fulvous hair, which is especially thick on the pronotum, the middle of the mesopleuræ and the median segment. Mesonotum rugosely punctured, the punctures running into reticulations ; down the middle are two, more or less clearly defined, furrows. Metanotum closely reticulated, thickly covered with bright fulvous pubescence, which is sparser

and longer on the apical half. Propleuræ smooth; the top at the base with some large, deep punctures. Mesopleuræ strongly punctured, the punctures hidden by the hair; the base and apex smooth. Metapleuræ smooth; the apex with large, moderately deep reticulations; the lower side at the base with deep, not very large, punctures. Legs black; the calcaria and spines pale; the pubescence pale fulvous. Abdomen black; the petiole covered all over with long, pale fulvous hair; the second segment is very shining, sparsely punctured; its apex narrowly and the third, fourth, and fifth segments broadly and thickly covered with fulvous pubescence; the pubescence on the apical segments is long and black. Wings fulvo-hyaline at the base; the apex from the first transverse cubital nervure, smoky and with a violaceous hue; the apical nervures are pale, the lower ones indistinct.

Comes into Bingham's "Section A, b, b<sup>1</sup>. Head rounded, not sloping backwards, punctured," but may be known from *M. discreta* Cam., the representative of that section, by the tegulæ not being black and by the fulvous, not white, pubescence.

D. THE GROUP OF *M. KHASIANA*. Species with the thorax red wholly or in part; the abdomen thickly banded with white or pale fulvous hair.

*MUTILLA KHASIANA, sp. nov.*

*Nigra, thorace rufo; alis fuscis, fere violaceis, nervis fuscis.* ♂.

Long. 15 mm.

Antennæ stout, distinctly tapering towards the apex; the scape thickly covered with long white hair; the flagellum with a pale pile; the tubercles are rufous.

Head shining; the face and clypeus thickly covered with silvery pubescence, the front and vertex with longer black hair. The vertex is bordered by a shallow, smooth and shining furrow, which is widest behind; the front ocellus is bordered by a smooth furrow; in front of it is a narrow, longitudinal one; the apex of the clypeus is somewhat triangularly depressed in the middle. Mandibles entirely black, shining. Thorax rufous; the sternum black; covered rather thickly with long pale hair. Pro- and meso-notum thickly punctured; the parapsidal furrows are distinct to near the apex; the scutellum is punctured like the mesonotum; the post-scutellum is much more finely punctured. Median segment reticulated; at the base in the middle is an elongated area which is narrowed and rounded at the apex. Propleuræ punctured at the base; on the lower side before the apex are four stout, longitudinal keels; the mesopleuræ similarly punctured; the apex with a few longitudinal keels. Metapleuræ reticulated; the base with deep punctures; the two parts being separated by a smooth, shallow band. Mesosternum closely and strongly punctured; the middle furrowed; the basal half depressed in the middle. Legs thickly covered with white hair; the calcaria pale, the anterior rufous. Wings fuscous, with a slight violaceous tinge; the nervures fuscous, the apical faint; the second cubital cellule at the top is distinctly shorter than the third; the second transverse cubital nervure is straight above, sharply oblique below; the first transverse cubital nervure is sharply oblique, only curved on the lower side. Abdomen shining; the basal four segments thickly covered with silvery hair at their apices; the apical segments thickly covered with long black hair; the petiole and the second segment, except in the middle at the base, strongly punctured.

*MUTILLA NIOBE, sp. nov.*

Long. 16 mm. ♂.

Agrees in coloration with *M. khasiana*, except that the wings are violaceous-black, not fuscous, the nervures and stigma also being deep black; may be known from it otherwise by the tegulae being strongly punctured.

Scape of antennae covered with long white hair; hollowed on the under side, the sides of the hollow distinctly margined; the flagellum covered with a close black pile, which is longer and thicker on the apical joints which are distinctly narrowed. Front and vertex coarsely punctured; the ocellar regions smooth; the punctures on the space between them and the eyes running into reticulations; the vertex sparsely covered with long fuscous, the outer orbits with shorter white hair. Mandibles covered with long white hair. Thorax rufous; except the sternum and the lower edge of the pleurae, which are black. Pro- and mesonotum rugosely punctured and covered with long blackish hair; shining. Scutellum rugosely punctured; sparsely covered with long black hair; the base of the postscutellum smooth. Median segment reticulated; more coarsely in the middle at the base, where there is a smooth depressed area, which is narrowed towards the apex and extends near to the middle; from its apex a keel runs to near the middle of the segment. Pro-pleurae closely and strongly punctured, except at the apex, where there are four longitudinal keels; on the apex of the mesopleurae, over the coxae, are four irregular keels; the metapleuræ regularly reticulated. Legs thickly covered with white hair; the calcaria and tarsal spines pale. Wings violaceous, paler at the base; the nervures deep black, except the apical. Abdomen deep black; distinctly punctured, especially at the base; the basal four segments fringed with long, pale fulvous, the others covered with long black hair.

MUTILLA COERULEO-TINCTA, *sp. nov.*

*Nigra, thorace rufo, abdominis basi coeruleo; alis fuscoviolaceis, nervis fuscis.* ♂.

Long. 12 mm.

Head distinctly narrower than the thorax, black, thickly covered with white hair; the front and vertex coarsely punctured; the vertex in the middle raised; the raised part keeled down the middle and bordered by a smooth, shallow furrow. Clypeus roundly convex, shining, smooth, its apex in the middle incised. Mandibles rufous before the middle; the palpi black. Antennæ stout, distinctly tapering towards the apex; the scape covered with long fuscous hair. Thorax rufous; the breast black. Pro- and meso-notum coarsely punctured; the punctures on the mesonotum somewhat larger, deeper, and more widely separated; the parapsidal furrows are distinct behind. Scutellum distinctly and uniformly punctured. Median segment reticulated; at the base, in the middle, is a smooth area, longer than broad, slightly curved and triangular at the apex. The upper part of the thorax is thickly covered with white hair, which is longer on the scutellum and median segment. Pro- and meso-pleuræ rather strongly punctured; the metapleuræ reticulated above; the middle smooth; the lower part punctured. Mesosternum between the four hinder legs furrowed; the furrow bordered by a keel. Legs black, thickly covered with long white hair; the calcaria pale. The wings are paler at the base; the nervures fuscous; the first transverse cubital nervure is curved; the second is slightly oblique above, sharply oblique below; the apical nervures and the second transverse cubital are thinner. The basal two segments of the abdomen have a distinct bluish tint; the bluish tinge on the others is less noticeable; the basal three segments are thickly fringed at the apex with pale

fulvous hair ; the other segments are thickly covered with longish black hair.

MUTILLA MONTANATA, *sp. nov.*

*Nigra, prothorace, mesonoto, scutello, mesopleurisque supra rufis; alis fusco-violaceis; tegulis rufis.* ♂.

Long. 16 mm.

Antennæ short, stout, distinctly tapering towards the apex ; the scape covered with long pale fulvous ; the flagellum more thickly with short pale pubescence. The middle of the vertex is smooth ; the part behind the ocellus is carinate, and with a depression on either side of it ; in front is a deeper and wider furrow, which is widest behind ; the lateral ocelli are placed on the sides of the furrow bordering the ocellar region. The vertex is covered with long fuscous hair ; the front more thickly with pale fulvous hair ; the clypeus thickly with silvery hair. Thorax black ; the prothorax, the mesonotum and scutellum and the mesopleuræ—broadest in front—immediately under the wings, rufous. Pronotum rugosely punctured ; the mesonotum not quite so strongly or deeply, but with the punctures running into reticulations. The scutellum is similarly punctured. Median segment closely and almost uniformly reticulated ; the central area at the base is rounded and not much narrowed at the apex. Propleuræ coarsely punctured ; the apex smooth ; in the hollow are four irregular keels. Mesopleuræ closely rugosely punctured, except below the hind wings, where there is a large smooth space, divided into two by a narrow curved keel. Metapleuræ reticulated. Legs black ; calcaria pale ; the hair thick, long, and pale fulvous. Abdomen with the basal two segments fringed with a broad belt of pale fulvous hair ; the third segment

is entirely covered with similar hair ; the apical segments are covered with stiff black hair. Wings fuscous with a distinct violaceous tinge ; the apical nervures distinctly fuscous.

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I here describe a number of species mostly of small size of which the females only are known. The Ceylonese species form a well-marked group of small size, remarkable for having the top, or sides, or both top and sides of the apex of the metathorax more or less spined. The species may be grouped as undernoted.

**A. Metathorax not spined.**

Abdomen with large orange spots and bands. *amitina*.

[ " " fulvous marks ; the head spined.  
*consolidata*].

" " white marks ; the head not spined.  
" " four white marks on the second  
abdominal segment. *redacta*.  
" " two white marks on the second  
segment. *compactilis*.

Thorax entirely red. *agelia*, *methila*, *dryta*, *martialis*.

Thorax red above, the pleurae marked more or less  
with black. *violenta*, *pamphia*, *marcia*, *gnoma*,  
*emancipata*, *tirhootensis*.

Abdomen with one mark on the second abdominal  
segment. *phaola*, *edolata*, *parthenia*.

**B. The metathorax spined ; the vertex more or less rufous.**

Abdomen with three marks on apex of second  
segment. *consolidata*.

Abdomen with one mark on apex of second segment.  
*persuasa*, *recondita*, *aspera*, *hesitata*, *indocila*,  
*lethargia*.

*MUTILLA AMITINA, sp. nov.*

*Nigra, basi antennarum pedibusque rufis; maculis 2 basalibus 2-i segmenti fasciisque 3-i et 4-i fulvo-aureis.* ♀.

Long. 10 mm.

*Hab. Ceylon (Yerbury).*

The scape of the antennæ and the second and third joints rufous; the scape sparsely covered with pale hair. Head black; the lower part of the orbits (broadly behind), the antennal tubercles, and the face, red; the base of the mandibles broadly rufous; the palpi testaceous; the head above the antennæ closely rugosely punctured, and sparsely covered with long black hair. Thorax quadrangular; longer than broad; the prothorax distinctly narrowed; the metathorax rounded. Pleuræ smooth and shining. Legs dark reddish, the femora with a darker tinge; the coxæ and trochanters black; the hair is pale on the femora, more rufous on the tibiae and tarsi. Abdomen black; on the base of the second segment are two large oval marks (broader than long) of golden-fulvous pubescence; and the whole of the third and fourth segments is similarly coloured; the pygidial area is closely, longitudinally striated, except on the apex.

This species is very closely related to *M. soror* Sauss., with which it agrees in the coloration of the abdomen, but may be easily separated from it by the black head and thorax, and by the scape and the basal two joints of the flagellum of the antennæ being rufous.

*MUTILLA CONSOLIDATA, sp. nov.*

*Nigra, vertice, mesonoto facieque rufis; flagello antennarum pedibusque piceis.* ♀.

Long. fere 5 mm.

*Hab. Ceylon (Yerbury).*

Scape of antennæ dark testaceous and covered with white hair; the flagellum is lighter in colour, especially

towards the apex. Head black, the lower part of the front, the face and oral region dark testaceous; the middle of the vertex with a large rufous mark; it is sharply longitudinally striated, the striae are sharp and clearly separated and they extend to the top of the front, which is distinctly punctured; the front and vertex are thickly covered with longish black hair. Face and clypeus smooth, laterally covered with long white hair; on either side of the clypeus is a short blunt tooth. Mandibles rufous in the middle, and sparsely covered with long white hair. The head is of the width of the thorax, and is largely developed behind the eyes. Thorax longer than broad, not much longer than the head; black; above rufous, except round the edges; closely rugosely punctured; its sides irregularly marked with six short teeth, the first being placed shortly before the middle; in the centre of the median segment, near the top, is a sharp curved tooth, broad at the bottom, narrowed towards the top. Pleuræ smooth and shining. Legs dark piceous, shining, covered with long white hair; the spines dark; the calcaria pale. The basal two segments of the abdomen together are longer than the thorax; black; on the apex of the petiole is a mark of white pubescence, almost round in shape; there is a larger round mark on the middle of the second segment at the apex, and a mark of the size of that on the petiole on either side of it; the other segments are also marked with white in the middle. The last segment is smooth, shining and piceous in the middle and punctured laterally.

Belongs to Bingham's "Section *B.*" It is closely related to *M. rothneyi*, but is 3 mm. smaller; its thorax is shorter compared with the head or abdomen, and there are only three longish teeth on the sides of the median segment, while in *M. rothneyi* there are spines all over.

MUTILLA REDACTA, *sp. nov.*

*Nigra, mesonoto abdomineque subtus rufis, abdominis segmento 2-0 4-maculato.* ♀.

Long. 8 mm.

Hab. Barrackpore (*Rothney*).

Antennæ stout, black, narrowed towards the base and apex of the flagellum ; the third joint about twice the length of the fourth. Head, if anything, wider than the thorax ; the front and vertex shining, closely and strongly punctured ; the mandibles broadly rufous towards the apex. Thorax black ; above (including the apex) rufous, except round the edges, which are black ; strongly rugosely punctured, the scutellar tubercles large, smooth ; the apex has an oblique slope and is reticulated above ; the upper edge irregularly dentate ; the base of the thorax is distinctly rounded ; the apex is more transverse. Legs black ; the apices of the tarsi inclining to piceous ; the tibial spines black. Abdomen black ; the second and following ventral segments rufous, fringed with white hair ; the ventral keel is deeply incised in the middle ; the base has a rounded, the apex an oblique slope. The petiole bears long fulvous hairs ; near the base of the second segment are two oblong white marks, on the apex two smaller roundish ones ; on the second segment two square ones, which are larger than the marks on the apex of the second ; the pygidium is irregularly longitudinally striated.

Looks like a miniature *M. sexmaculata*. [As the fact is not mentioned by Col. Bingham, it may be pointed out that in *M. sexmaculata* there is, in all the examples I have seen, a small rufous mark on the vertex, and that the mesonotum is covered with stiff golden hairs ; the ventral surface of the abdomen too is more or less rufous.]

*Note.*—In Col. Bingham's table on p. 6 there is an error which may mislead. He states that the four marks on the abdomen of *M. sexmaculata* are on the first segment, whereas they are on the second ; the same mistake is repeated in the description on p. 25.

MUTILLA AGELIA, *sp. nov.*

Long. 8—9 mm.

This species and that next described (both from Barrackpore, where they were taken by Mr. Rothney) belong to the group of *M. interrupta*, having the thorax entirely red; the head and abdomen black, the latter with two oval marks of white pubescence, and the third and fourth segments covered with similar pubescence broadly on the sides.

Length 9 mm.; the scape and the second joint ferruginous, the ventral keel projecting in the middle, depressed on either side of the keel. *M. agelia.*

Length 7 mm.; the antennæ entirely black; the ventral keel with the basal third projecting downwards.

*M. mithila.*

Scape of antennæ thickly covered with long white hair; the apex and the greater part of the lower side rufous; the second joint of a darker rufous colour; the third joint nearly twice the length of the fourth. Head a little wider than the thorax; strongly rugosely punctured; the front and vertex sparsely covered with longish black hair. Antennal tubercles black. Thorax red; twice the length of the head; the base rounded in the middle, its sides slightly oblique; the apex almost transverse, the sides straight, strongly rugosely punctured above; the apex has a sharp, oblique slope; the basal two-thirds strongly reticulated; the middle with two straight keels, which are clearly separated; the apex in the middle more irregularly and less distinctly reticulated. Pleuræ smooth and shining, the lower half of the meso- thickly covered with silvery pubescence. Legs black, thickly covered with white hair; the calcaria pale; the five tibial spines pale rufous; the tarsal spines are long and pale rufous. Abdomen as long as the head and thorax united; the

petiole has the apex closely punctured and fringed with black hair; the rest bears scattered punctures. On the base of the second segment are two somewhat oval silvery marks; the third and fourth segments bear broad bands of silvery pubescence on the sides; the pygidium is finely rugose, and fringed at the sides with long white hair. The ventral keel is rufous, tridentate; the basal keel triangular, the others more rounded.

MUTILLA MITHILA, *sp. nov.*

Long. 7—8 mm.

Agrees in coloration, markings, and form with *M. agelia*, but is smaller, and may be readily known from it by the ventral keel being straight throughout; the apex of the petiole is fringed with long white hair; the pygidium is more distinctly longitudinally striated, and smooth and piceous at the apex, and the antennæ are entirely black.

Antennæ stout, the scape bearing long white hair; the flagellum thickly covered with a pale down, and stout; the third joint about one-third longer than the fourth. Head not much wider than the base of the thorax; the front and vertex rugosely longitudinally punctured, sparsely covered with long fuscous hair; the tubercles ferruginous. Mandibles broadly rufous on the base; the palpi dark testaceous. Thorax not quite twice the length of the head; ferruginous; the mesonotum rugosely punctured, covered with blackish hairs; the apex with an oblique slope, and broadly rounded above; the upper half of the slope reticulated, running below into striae, which are wide apart; the lower half is neither punctured nor striated, and is covered with long white hair. Pleurae smooth and shining; the apex of the meta- irregularly reticulated; they are covered with a white pile. Legs thickly covered

with white hair; the calcaria pale fulvous; the tarsal spines fulvous; the spines on the hinder tibiæ are blackish. Petiole at the base sparsely covered with long pale hair; the apex fringed with long white hairs; the two marks on the base of the second segment are oval; the third and fourth segments are thickly covered laterally with pale fulvous pubescence; the pygidium is closely, longitudinally striated, the apex smooth and piceous, the sides covered with long pale hair. The ventral keel is not clearly defined, and is straight throughout.

MUTILLA DRYTA, *sp. nov.*

Long. 7 mm. ♀.

Hab. Barrackpore (*Rothney*).

Antennæ black, the scape obscure fuscous; the third joint not much narrowed at the base, about twice the length of the fourth. Head distinctly wider than the thorax; the vertex finely rugose; its apex and the front closely, irregularly, longitudinally striated, running into reticulations; the tubercles are rufous. Thorax fully twice the length of the head, ferruginous; the base distinctly rounded; the apex transverse; the sides slightly and broadly contracted in the middle; strongly, longitudinally, rugosely punctured above; the apex has an oblique, slightly rounded slope, is strongly reticulated and covered with long white hair. Pleuræ smooth; the upper edge of the meta- irregularly reticulated. Legs black; the front tarsi piceous; thickly covered with white hair; the tibial spines white, the tarsal with a more rufous tinge. Abdomen black; the petiole with pale hairs; on the base of the second segment are two oval marks; the third and fourth segments are broadly covered, except in the middle, with silverly pubescence; the apex of the fifth is sparsely covered with pale hair; the apical segment is

thickly covered with long silvery hair; the centre is closely and finely rugose.

MUTILLA COMPACTILIS, *sp. nov.*

*Nigra, thorace rufo; abdominis segmento secundo maculis duabus segmentoque tertio cinereo-sericeo-notatis; capite mesonotoque dense rugoso-punctatis; metanoto striolato-reticulato.* ♀.

Long. 8 mm.

*Hab.* Barrackpore (*Rothney*).

Head as wide as the base of the mesothorax; strongly, irregularly, closely, rugosely punctured, the punctures in parts running into reticulations; covered with long fuscous hair; the part behind the eyes is slightly longer than they; the face rugose; the clypeus smooth and shining. Mandibles broadly rufous in the middle. Antennal tubercles black. Antennæ stout, the greater part of the flagellum brownish beneath; thickly covered with a minute fulvous pile. Thorax red, twice the length of the head; the base rounded; the sides parallel and becoming narrowed from the middle to the apex, which has a gradually rounded slope. Mesonotum strongly and deeply rugosely punctured, reticulated in the middle; sparsely covered with long black hair; the apex is irregularly, stoutly, longitudinally striolated; the end is almost smooth. Pleuræ smooth, except the upper edge of the metapleuræ. Legs black, thickly covered with white hair; the tibial spines dark, the tarsal bright rufous; the calcaria pale. Abdomen of the length of the head and thorax united; black; the petiole covered with long fuscous hair; its apex smooth; behind the middle of the second segment are two round marks of silvery white pubescence; the third segment is entirely covered with similar pubescence; pygidium shining; the base aciculated; the sides are thickly covered with long silvery

hair. The basal ventral segment is rufous: the apical half is roundly dilated.

MUTILLA MARTIALIS, *sp. nov.*

Long. 7 mm. ♀.

Hab. Barrackpore (*Rothney*).

Agrees closely in size and coloration with *M. dryta*; differs from it in having the thorax narrower, longer and more dilated behind; in the petiole being rufous beneath; in its keel not being incised; and in the coxae being rufous.

Antennæ stout, black, thickly covered with a pale pile; the third joint is nearly twice the length of the fourth; the antennal tubercles large, rufous. Head distinctly wider than the thorax, strongly and deeply punctured; on the front and vertex sparsely covered with short golden hair. Mandibles broadly rufous in the middle. Thorax twice the length of the head; slightly widened at the base and apex; the pronotum shining, obscurely, finely, transversely striated. Mesonotum strongly and deeply rugosely punctured, and sparsely covered with long black hairs; the apex has a rounded slope, is strongly reticulated; the middle reticulations more open, running into irregular longitudinal striae. Propleuræ irregularly punctured; the apex of the meta- irregularly and indistinctly reticulated towards the apex; the rest smooth and shining. Legs black, inclining to piceous on the femora, the coxae rufous; the hair white; the calcaria and tibial spines pale; the tarsal spines with a more fulvous tint. Abdomen black; the petiole rufous beneath, its keel straight; on the second segment are two oval marks, near the middle, of silvery pubescence; the third and fourth segments are broadly banded laterally with similar pubescence; the pygidium is obscurely punctured at the base; its apex smooth; the sides fringed with long pale hair.

*MUTILLA TIRHOOTENSIS, sp. nov.*

*Nigra, vertice late thoraceque supra rufis; abdomine argenteo-octo-maculato; pedibus nigris, dense argenteo-pilosus.* ♀.

Long. 10 mm.

*Hab.* Tirhoot, Bengal (*Rothney*).

Belongs to Bingham's "Section B : head black, variegated with red or ferruginous ; thorax red."

Scape of antennæ thickly covered with pale fulvous hair; the flagellum thickly with pale pubescence. Head developed more than the length of the eyes behind them, rugosely punctured, the punctures round, large, deep ; the front and vertex sparsely covered with long, black and pale hairs ; between and below the antennæ is a thick mass of long, pale fulvous hair. Mandibles rufous in the middle ; the base covered with long pale hair. In the centre of the vertex is a large rufous spot. Thorax red, the lower part of the pleuræ and the breast black ; above, irregularly and deeply reticulated all over ; the reticulations large and deep, and with thick walls ; the apex has an oblique slope, is reticulated only on the top and sides, the rest smooth and with a keel in the middle. Pro- and meso-pleuræ black ; the propleuræ reticulated above at the top ; the lower half of the mesopleuræ thickly covered with depressed silvery pubescence ; metapleuræ rufous, reticulated. Legs black, thickly covered with white hair. Abdomen not much longer than the head and thorax united ; black ; the basal segment thickly covered with long white hair ; on the centre of the second segment are two oval, dark silvery marks ; there are two large square ones, clearly separated, on the third ; the fourth and fifth thickly covered with long, silvery pubescence, and divided into two by a narrow division. Pygidium smooth and bare in the middle, the sides thickly covered with long black hairs ; the ventral surface covered with long black hairs.

MUTILLA VIOLENTA, *sp. nov.*

*Nigra, thorace supra rufa; flagello antennarum brunneo; abdomine albo-sex-maculato, subtus rufa.* ♀.

Long. 8 mm.

Hab. Ceylon (*Yerbury*).

Head slightly, but distinctly, wider than the thorax, strongly rugosely punctured ; in the middle the punctures are stronger, and run into irregular longitudinal striations ; is reticulated over the antennæ. Scape of antennæ covered with long silvery hairs ; the flagellum is stout, dark rufous, darker, almost black, above ; the third joint is not quite the length of the fourth, and is narrowed at the base. Thorax twice the length of the head, slightly irregularly contracted in the middle above, the metathorax slightly wider. The median segment has an oblique slope, is deeply and strongly reticulated, and is darker coloured at the apex ; its upper part dentate. Propleuræ and the upper parts of the meso- and meta-pleuræ rufous, smooth and shining ; the apical part of the last irregularly reticulated. Legs black, with a slight piceous tint ; the calcaria pale ; on the hinder tibiæ are five stout, dark rufous spines. Abdomen black, the ventral surface for the greater part ferruginous ; the basal segment is sparsely covered with long white hair ; the two marks on the base of the second segment are oval ; the two on the third segment are larger, are on the apex of the segment, broader than long, and irregularly rounded behind ; the marks on the fourth segments are smaller ; the pygidium is closely longitudinally striated, and fringed laterally with long pale hair ; the ventral keel has a slight curve ; the segments are rather thickly covered with long white hair.

MUTILLA PAMPHIA, *sp. nov.*

*Nigra, capite dense longe pallide piloso; thorace supra*

*ferrugineo; abdomine fulvo-quadri-maculato; pedibus nigris.* ♀.

Long: 10 mm.

*Hab.* Barrackpore (*Rothney*).

Head as wide as the thorax; the front and vertex thickly covered with long black, intermixed with shorter silvery hair; it is largely developed behind the eyes—more than their length—and is closely and strongly punctured; the punctures large and deep. Antennal tubercles black. Behind and below the eyes the hair is thicker and longer. Scape of antennæ thickly covered with long silvery hair; the flagellum with a pale down; the third joint is about one-quarter longer than the following. Mandibles rufous in the middle; the base thickly covered with long white hair. The thorax not quite twice the length of the head; the pronotum is large, flat above, irregularly punctured, obscure rufous, the sides margined. Mesonotum entirely red; deeply and strongly punctured; the punctures large; the hair is sparse, long and black. The median segment has an oblique slope; the upper part has large reticulations; the lower part is black. The propleuræ piceous and finely striated; the base of the mesopleuræ irregularly striated and punctured; the upper part of the metapleuræ strongly reticulated; the upper edge of the meso- and the upper half of the meta-pleuræ are rufous. Legs thickly covered with white hair; calcaria white; the tibial spines pale rufous, black on the apex. Abdomen deep black; the petiole thickly covered with long white hair; in the middle of the second segment are two fulvous oval marks; on the sides of the third are two square ones of similar colour; pygidium smooth and fringed with long black hairs. The basal ventral segment is rufous; the keel is roundly dilated towards the apex; the second segment has an oblique

slope, is piceous in the middle; the sides and apex are strongly punctured.

A distinct species, distinguished by the head and thorax having more and longer hair than usual. It fits best into Bingham's "Section A.,  $\alpha$ ,  $\alpha'$ ," but the spots are fulvous rather than yellow and golden.

MUTILLA MARCIA, *sp. nov.*

*Nigra, mesonoto metanotique apice supra rufis; abdome albo-sex-maculato; pedibus nigris.* ♀.

Long. 7 mm.

Hab. Barrackpore (*Rothney*).

Head slightly wider than the thorax; black, strongly rugosely punctured, running into reticulations, sparsely covered with long black, behind the eyes thickly with white hairs. Thorax twice the length of the head, rounded in front; black; the mesonotum and the upper third of the apical slope of the metanotum ferruginous; strongly and deeply rugosely punctured, more strongly on the apex than on the base; the apex has an oblique slope and is broadly rounded above; it is strongly, irregularly, longitudinally striated; the striæ stronger and irregularly curved on the rufous part, becoming weaker and straighter towards the middle; the apical part is smooth. Pleuræ smooth; black, except for a curved red band on the apex above; the upper edge is rough and irregular; on the upper side of the metapleuræ are four short, blunt teeth; above the apical slope are short, irregular teeth. Legs black, thickly covered with white hairs; the calcaria white; the spines on the hinder tibiæ long and pale. Abdomen black; near the base of the second segment are two oval marks, placed lengthways; on the third segment are two larger oval spots placed across, and on the fourth are two smaller round spots of silvery

pubescence ; the ventral keel is straight, and not much developed ; the sides of the second segment, above in the middle, covered with rufous pubescence.

MUTILLA GNOMA, *sp. nov.*

*Nigra, prothorace, mesonoto metanotoque rufis; abdominis segmento 2-0 albo-bimaculato; pedibus nigris.* ♀.

Long. 5 mm.

*Hab.* Barrackpore (*Rothney*).

Head slightly wider than the thorax ; rugosely punctured, sparsely covered with longish fuscous hair ; the antennal tubercles rufous. Antennæ stout, the apex of the scape rufous ; the third joint about one-half longer than the fourth. The prothorax is entirely rufous ; the mesonotum, metanotum, the upper part of the apical slope and the upper third of the metapleuræ, rufous. The upper part of the thorax is coarsely, longitudinally and rugosely punctured ; the upper (red) part of the apical slope is largely reticulated, ending in the top of the black part in elongated areae, which are rounded below ; the lower part is smooth. Pleuræ smooth and shining ; the basal keel on the propleuræ rough, irregular ; the lower half thickly covered with white hair. Legs black, thickly covered with white hair ; the calcaria white ; on the tibiæ are five sharp, pale spines. Abdomen black, the base sparsely covered with long pale hair ; on the second segment, shortly behind the middle, are two round, silvery-white marks ; the sides of the third and the fourth dorsal segments are covered with white hair ; the pygidium smooth ; the ventral keel is straight.

The eyes are large ; the thorax is about twice the length of the head, is rounded in front, more transverse behind. In Bingham's table (p. 4) comes near to *M. ruficrux*, but is distinct from anything described.

MUTILLA EMANCIPATA, *sp. nov.*

*Nigra, mesonoto propleurisque rufis; abdomine albo-sex-maculato; pedibus nigris.* ♀.

Long. 6 mm.

Hab. Barrackpore (*Rothney*).

Antennæ stout, black ; the apex of the scape rufous, the third joint not quite twice the length of the fourth. Head not quite so wide as the thorax ; strongly, but not closely, punctured and sparsely covered with black hair ; the tubercles rufous ; the face testaceous. Mandibles broadly rufous at the base. Thorax short, rounded and slightly narrowed towards the base ; the sides straight ; the mesonotum strongly rugosely punctured, the punctures large, deep, and running in the middle into reticulations ; the apex has an oblique slope and is rounded above ; it is black, except above, and is irregularly rugose. Pleuræ black, except the propleuræ and the base of the mesopleuræ, which are ferruginous, the prosternum being also rufous ; the mesopleuræ bears a silvery pile ; the metapleuræ smooth, not reticulated ; the apical half thickly covered with longish white hair. Legs thickly covered with white hair ; the tibial and tarsal spines white, with a slight fulvous tinge ; the calcaria white. Petiole fringed with long, dark fuscous hair ; on the second segment behind the middle are two oval marks of silvery pubescence, and the sides of the third and fourth segments are covered with silvery pubescence ; the basal half of the pygidium is punctured, the apical closely, transversely striated ; the basal ventral segment has the basal half raised behind, and with an oblique slope towards the middle.

Resembles *M. gnoma* ; but is known from it by the base only of the pleuræ being rufous, *gnoma* having the apex of the metapleuræ rufous, and by the thorax being wider compared with the head.

*MUTILLA PHAOLA, sp. nov.*

*Nigra, mesonoto rufo; abdomine albo-4-maculato; pedibus nigris, tarsis sordide testaceis.* ♀.

Long. 5—6 mm.

*Hab.* Poona (*Wroughton*).

Head black, not much wider than the thorax, strongly and closely punctured, sparsely covered with long blackish hair; the antennal tubercles large, rufous, shining; mandibles dark rufous, the apex black; palpi testaceous. Eyes moderately large. Antennæ stout; black; the scape at the apex, and more or less below, red; the second joint is entirely red; the flagellum more or less irregularly dark rufous beneath; the third and fourth joints are almost equal in length. Thorax scarcely twice the length of the head; the prothorax distinctly separated and narrowed; the apex is rounded. The meso- and the upper part of the meta-notum dark rufous, strongly and deeply punctured; the apex has an oblique slope, and is rounded above; smooth; black; the upper part with some short striæ and some punctures. The base of the propleuræ rufous; the upper part behind punctured; meso- and base of meta-pleuræ smooth; the apex of the metapleuræ punctured; the punctures large and scattered. Prosternum dark rufous. Legs covered with long white hair; the tarsi are dark testaceous. Abdomen scarcely so long as the head and thorax united; deep black; the petiole covered with long white hair; on the base of the second segment is a spot of silvery pubescence; there is a similar spot, twice its size and rounded behind, on the apex of the second segment; there is a small mark in the middle of the fourth, and a larger one on the fifth; the pygidial area is not defined, and is smooth and shining. The basal ventral segment is tri-

angularly, obliquely depressed at the base and apex ; the middle keel is broad, straight.

Comes near to *M. trimaculata* Cam.

MUTILLA EDOLATA, *sp. nov.*

*Rufa, abdomine nigro, segmentis 1—5 vitta apicali albo-sericea ornatis; pedibus rufis; capite laevo, nitido, sparse punctato.* ♀.

Long. 7 mm.

Hab. Ceylon (*Verbury*).

Head distinctly wider than the thorax ; broader than long ; behind the eyes as long as them ; smooth, shining, sparsely punctured and covered sparsely with longish black hair ; the antennal tubercles large, smooth and shining. Mandibles rufous, their apices broadly black. Antennæ stout, rufous, thickly covered with a white down ; the third joint narrowed, twice the length of the fourth. Thorax of equal width above ; strongly, longitudinally rugulose, sparsely covered with longish black hair ; the apex has an oblique slope, is smooth, shining, and thickly covered with long fuscous hair. Pleuræ smooth and shining ; the upper half of the metapleuræ punctured sparsely. Legs rufous, and thickly covered with fuscous hair ; the tibial spines coloured like the legs. Abdomen black with a faint violaceous-blue tint ; there is a small square mark on the apex of the first; a large semi-circular one on the second, a smaller one on the third, and a still smaller one of silvery pubescence on the apex of the fourth abdominal segment ; the pygidium is smooth, testaceous. The sides of the petiole below are broadly rufo-testaceous.

Agrees in size and coloration with *M. hesitata* ; is easily distinguished by the shorter thorax, which is not twice the length of the head as it is in *M. hesitata*, and by the smooth front and vertex.

*MUTILLA HESITATA, sp. nov.*

*Ferruginea, abdomine coeruleo, albomaculato; metanoto reticulato.* ♀.

Long. 7 mm.

*Hab.* Ceylon (*Verbury*).

Agrees in coloration and size with *M. poonaensis* Cam., from Bombay ; but may readily be distinguished from it by the median segment being reticulated.

Head slightly broader than the thorax, the front and vertex strongly punctured ; the former with blackish, the latter with golden hair ; behind the eyes it is about half their length, and is roundly narrowed. Antennal tubercles smooth and shining. Antennæ stout, reddish. Thorax twice the length of the head, slightly narrowed towards the apex ; mesonotum rugosely punctured and sparsely covered with golden hair ; the scutellar region with black hair. The upper part of the median segment is distinctly, and not very closely, reticulated ; the apex is smooth, neither punctured nor reticulated. The propleuræ sparsely punctured above ; the lower part at the apex is blackish ; the lower part of the mesopleuræ blackish, thickly covered with long silvery hair. Metapleuræ black, rufous round the edges, the lower part thickly covered with silvery pubescence. Abdomen coeruleous ; on the base of the second segment is an oblong, white spot ; its apex has a broad white band, interrupted in the middle ; the fourth and following segments are thickly covered with long black hair ; the spot is longer than broad, the base and apex bluntly rounded ; the last segment is smooth, its sides bearing long white hair.

*MUTILLA PARTHENIA, sp. nov.*

*Nigra, thorace rufo; abdominis segmento 2-o pallide aureo-maculato, apice aureo-piloso; pedibus nigris.* ♀.

Long. 6 mm.

*Hab.* Barrackpore (*Rothney*).

Antennæ black, distinctly tapering towards the apex ; the scape covered with pale fulvous hair ; the third joint not much longer than the fourth, and narrower than it. Head as wide as the thorax, closely rugosely punctured ; sparsely covered with black hair ; the antennal tubercles red, punctured above, shining. Mandibles rufous, black at the apex. Thorax strongly rugosely punctured ; before the apex is an indistinct transverse furrow ; the sides are almost straight ; the apex almost transverse ; it has an abrupt, slightly oblique slope, and is strongly and closely reticulated. Pleuræ smooth and shining, the propleuræ rugose. Legs black, the hair long and white ; there are four pale rufous spines on the tibiae ; the calcaria and the tarsal spines are paler. Abdomen not quite so long as the head and thorax united ; black ; the basal segment is sparsely covered with long black hair ; on the base of the second segment is a spot of pale golden pubescence ; its apex, and the third segment entirely, covered with similar pubescence ; the pygidium is dark rufous, and is closely longitudinally striated ; the ventral keel is rufous and is triangularly incised in the middle.

Comes nearest to the Burmese *M. conjungenda* Magr.

MUTILLA PERSUASA, *sp. nov.*

*Nigra, vertice mesonotoque rufis ; femoribus piceis ; abdomine albo-bimaculato.* ♀.

Long. 7 mm.

Hab. Ceylon (*Yerbury*).

Head large, distinctly wider than the thorax ; behind the eyes it is twice their length ; black ; a large red mark, broader than long, with the sides rounded, on the vertex ; shining, the front and vertex distinctly, but not very closely, punctured ; the punctures closer on the front than on the vertex ; sparsely covered with long black hair ; the

antennal tubercles rufous. Eyes rather small, compared with the head. Mandibles broadly rufous in the middle. The face covered with long white hair below the antennæ. Thorax somewhat quadrangular, rounded at the base and apex; in length, half that of the abdomen, black; the mesonotum rufous, except round the edges; strongly rugosely punctured, sparsely covered with long black hairs; the apex of the median segment above projects into a plate which is broader than long and has, on either side of it, three short, stout teeth. The apex of the segment is shining, sparsely punctured, except on the apex, covered with long pale hair, and with a fine longitudinal keel in the middle. Pleuræ smooth and shining, the apical part of the metapleuræ distinctly punctured, except on the top. Legs black, the femora and the anterior tibiæ piceous; the spines dark rufous, the calcaria pale. Abdomen not much longer than the head and thorax united; black, closely punctured; a spot on the apex of the petiole and a larger, broader one on the apex of the second segment of silvery pubescence; the pygidium strongly punctured, except in the middle, which is aciculated; it is covered with silvery pubescence and with long pale hair; the petiole is covered with long hairs, pale on the base, those on the apex darker.

Belongs to Bingham's "Section B: head black, variegated with red; thorax red," (p. 6) except that with it only the mesonotum is red.

#### MUTILLA RECONDITA, *sp. nov.*

*Nigra, thorace ferrugineo, pleuris apicque segmenti medialis infra nigris; abdominis segmento 2-o albo-bimaculato; pedibus nigris, tarsis posticis testaceis.* ♀.

Long. 5 mm.

*Hab.* Ceylon (*Yerbury*).

Comes into Bingham's "Section A. *a. a<sup>1</sup>. b<sup>2</sup>. b<sup>4</sup>.*" near to *M. tridungulata*.

Scape of antennæ shining, sparsely pilose, piceous; the base of the flagellum testaceous. Head black; slightly, but distinctly, wider than the thorax; the front and vertex closely, strongly and uniformly punctured; the transverse keels above the antennæ are distinct; on the front in the middle is a narrow longitudinal keel. The sides of the face are rufous. Mandibles rufous. Thorax rufous; the sides parallel; the base and apex rounded; it is about twice the length of the head. Mesonotum strongly punctured, more closely and not so strongly at the apex; the base irregularly striated, the sides uneven. The apex has a rather abrupt oblique slope; it is black, rufous round the edges; the lower part in the middle smooth, the rest reticulated; the upper part has in the centre a bluntly rounded, broad tooth; on either side of this are four short, blunt teeth. Pleuræ smooth, shining, black, rufous round the edges. Legs black, piceous at the base; covered with white hair; the tibial spines pale testaceous, longish, and four in number. Abdomen as long as the head and thorax united; black; the petiole punctured and covered with long pale hairs; behind the middle of the second segment are two oval marks of pale fulvous pubescence; the third and fourth segments are covered with similar pubescence; the pygidium is strongly and closely punctured; the second ventral segment is strongly punctured.

MUTILLA ASPERA, *sp. nov.*

*Nigra, vertice mesonotoque ferrugineis; apice abdominis segmenti secundi fulvo-piloso; flagello antennarum subtus brunneo; apice metanoti spinoso.*

Long. 7—8 mm.

*Hab.* Ceylon (*Yerbury*).

Comes into Bingham's "Section B: head black, variegated with red or ferruginous; thorax red" and "d. Second abdominal segment with no white spots, but a fascia on apical margin semicircular." This only contains *M. reticulata*, which has no near relationship to the present species and may be known from it by the median segment not being spinose.

Head slightly, but distinctly, wider than the thorax; slightly broader than long; rounded in front, slightly roundly concave behind; black, a large red mark on the vertex broader than long, punctured uniformly; sparsely covered with short blackish hair; the antennal tubercles smooth, shining, red. Mandibles broadly rufous in the middle and fringed with long, pale fulvous hair. Antennæ thickly covered with a pale down, stout, the flagellum brownish beneath. Thorax black, the mesonotum broadly rufous in the middle; it is longer than broad, not much longer than the head; the base broadly rounded; the apex has a broad plate in the centre, almost square, and with a small, stout, square tooth on either side; outside this is a nipple-like tooth. Mesonotum longitudinally rugose in the middle on the basal two-thirds. The apex of the median segment has an oblique slope, and is irregularly, and not very distinctly, reticulated round the sides. Pleuræ smooth and shining; the apical half of the metapleuræ strongly punctured. Legs thickly covered with white hair; the femora and coxæ have a piceous tinge; the tibial spines dark, the tarsal bright rufous, the calcaria pale. Abdomen black, rather thickly pilose; on the apex of the first is a small, on that of the second a larger, tuft of pale fulvous pubescence. Pygidium strongly punctured; the middle smooth and bordered. The basal ventral segment is smooth and shining, dull rufous; there is a narrow oblique keel along the sides, but no central keel.

MUTILLA INDOCILA, sp. nov.

*Nigra, vertice thoraceque rufis; abdominis segmento secundo albo-maculato; pedibus nigris, femoribus piceis.* ♀.

Long. fere 6 mm.

*Hab.* Ceylon (*Yerbury*).

Head as wide as the thorax, broadly rounded in front, transverse behind, with the edges rounded; black; the vertex broadly rufous; strongly punctured, behind the ocelli not so strongly and more closely; sparsely covered with black pubescence. Antennal tubercles rufous; the face rufo-testaceous; the central part clearly separated and triangular. Mandibles rufous, black at the apex. Palpi dark testaceous. Antennæ stout, black, dark testaceous beneath, thickly covered with a pale pile. Thorax rufous, about twice as long as broad, rounded at base and apex; rugosely punctured above and irregularly longitudinally striated on the basal half; the lateral edges are rough; the apex of the median segment above with a spine in the middle; this spine is broad at the base viewed laterally, and narrowed towards the top; near the middle on either side of it are two short, thick spines. Pro- and meso-pleuræ smooth and shining; the metapleuræ black, strongly punctured. Legs black; the femora inclining to piceous; the hair long, dense, and white; calcaria white. Abdomen black; a mark of white pubescence on the apex of the petiole, a much larger one, much broader than long and bluntly rounded behind, on the apex of the second, and one slightly larger than it on the petiole, and one, somewhat square in shape, on the apex of the third segment. The apical segment has no area, is thickly covered with long, pale fulvous hair, and strongly punctured at the base; the basal ventral segment is pale testaceous and has no keel in the middle.

Is nearly related to *M. aspera*, having the same general

coloration, but is much smaller and more slenderly built; may readily be known by the central tooth on the median segment not being broad and plate-like.

MUTILLA LETHARGIA, *sp. nov.*

*Nigra, capite thoraceque ferrugineis; pedibus nigris, tarsis testaccis; abdominis segmentis albomaculatis.* ♀.

Long. 5 mm.

*Hab.* Barrackpore (*Rothney*).

This species fits best into Bingham's "Section D"; but the head has less black and more red than in most of the species of the group. The spined metanotum, size and coloration indicate its relationship to the Ceylonese *M. aspera*, &c.

Antennæ stout, the flagellum thickly covered with white pubescence, the scape and base of flagellum dark piceous; the third joint narrowed at the base and twice the length of the fourth. Head as wide as the thorax; slightly rounded in front, transverse behind; behind, it is not quite so long as the eyes; the lower edges distinctly margined, irregularly serrate, below the eyes. Antennal tubercles large, smooth, and shining. The face and oral region rufo-testaceous, the middle thickly covered with long, the sides with shorter, white pubescence. Mandibles broadly rufous at the base; the palpi pale testaceous. Thorax twice as long as broad; the sides irregular, not contracted in the middle; on the sides, behind the middle, are six distinct teeth; the basal one is the smallest, the apical one stouter and broader than the others; the upper edge is irregularly toothed; the central tooth being longer, sharper, and more distinct than the lateral, and from its base a narrow keel runs towards the middle of the mesonotum. The apex of the thorax has an oblique slope, is strongly punctured all over, thickly covered with long

white hair; the upper third is rufous, the rest black. The pro-, meso-, and base of meta-pleura smooth and shining. Legs black, inclining to piceous, covered with longish white hair; the tarsi lighter in colour; the tibial spines four, longish, sharp, pale testaceous. Abdomen deep black; there is a small mark on the apex of the first abdominal segment, a longer, broader one, rounded behind, on the apex of the second, and a smaller one on the apex of the third, of silvery pubescence; the pygidium not defined; the central segment smooth, shining, and rufo-testaceous in colour; the hypopygium is punctured, keeled laterally and rufo-testaceous on the apex.

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The following species are only known in the winged or male sex. In the *Ann. & Mag. Nat. Hist.* for August of the present year I have described a number of new species of *Mutillidae* from India.

MUTILLA FOVEISCUTIS, *sp. nov.*

*Nigra, abdomine ferrugineo, basi apiceque nigris; scutello tuberculato, medio lœvo, basi foveato; alis violaceis; capite thoraceque dense nigro-pilosis.* ♂.

Long. 23 mm.

*Hab.* Poona (*Wroughton*).

Antennæ distinctly tapering towards the apex; the scape thickly covered with long white hair; the flagellum with a pale pile. The front and vertex are strongly, but not closely, punctured, thickly covered with long black hair; the middle of the front thickly covered with silvery pubescence; the lower inner orbits with a broad belt of silvery pubescence; the face bare, shining; the apex of the clypeus transverse, covered with long hair; obliquely projecting. Mandibles black; the base thickly covered with silvery pubescence, the rest bare, smooth and

shining. Thorax thickly covered with stiff black hair; the pronotum broadly at the apex, and the lower side of the mesopleuræ in the middle, thickly covered with silvery pubescence. Mesonotum strongly and deeply punctured; the furrows are deep; between them is a keel which is smooth and shining, and extends to near the base. Scutellum rugosely punctured, its middle smooth, bare and shining; at its base is an oval fovea; its apex is slightly depressed; the smooth part projects over the apex, which has a long, sharply oblique slope. The base of the median segment is raised and has a perpendicular slope, and is separated from the mesothorax by a wide deep space; the segment is opaque, coarsely alutaceous, not reticulated, and is sparsely covered, particularly at the sides, with long black hairs; the central furrow is depressed at the base, where it is furrowed in the middle; it reaches to the top of the slope, becoming gradually narrower; the keels are raised at its apex and are there smooth and shining; the apex has an almost perpendicular slope, and is rounded at the top. Propleuræ rugose, the middle bearing stout striæ, the apex smooth. Mesopleuræ broadly tuberculate at top and bottom, opaque, alutaceous, and covered with black hairs; the upper half of the metapleuræ reticulated, the lower smooth. Legs thickly covered with black hair; the fore calcaria pale. Abdomen ferruginous, the petiole and two-thirds of the apical segment black; the petiole strongly punctured and covered with long black hair, as is also the base of the second segment; the apex of the second, and the third to sixth segments, thickly covered with long orange pubescence; the black part of the last segment is covered with black hairs; its middle is smooth and bare, the apical half of the ventral keel projects as an oblique, somewhat triangular tooth, rounded at the apex; the

apical two ventral segments are armed laterally with stout, oblique keels, the basal one being stouter and shorter than the apical.

Comes near to *M. cressida* and *M. 4-carinata*; may be known from both by the fovea on the base of the scutellum, and by the wide and deep depression at the base of the median segment.

MUTILLA QUADRICARINATA, *sp. nov.*

Long. 22 mm. ♂.

Hab. Barrackpore (*Rothney*).

Agrees in size and coloration with *M. sexmaculata* (*cf. Cameron, Ann. & Mag. Nat. Hist.*, July, 1899, p. 61), but differs from it by the prothorax wanting the band of white pubescence; by the scutellum wanting the depression in the middle at the base; by the median segment having the pubescence longer, blacker, and more dense; by its apical slope being more rounded, not so shapely oblique; by the hair on the petiole being longer and black; by the tooth on the ventral keel being placed at the end, not in the middle; and by the antennæ being longer and more slenderly built.

Scape of the antennæ covered with long black hair; the flagellum with a pale down. Front and vertex thickly covered with long black hair; the front also with silvery pubescence; the cheeks with a broad band of silvery pubescence. Clypeus bare, shining, its sides and apex obscurely striated; the basal half of the mandibles thickly covered with silvery pubescence. Pro- and meso-thorax thickly covered with long, stiff, black hair. Prothorax coarsely rugosely punctured; the middle of the pleuræ with stout, distinctly separated striæ; the apex smooth. Mesonotum coarsely rugosely punctured; the furrows are wide and deep; between them is a longitudinal keel.

Scutellum pyramidal; its top and base in the middle smooth, shining, glabrous; the rest strongly rugosely punctured and thickly covered with long black hair. The median segment is narrowed at the base, is coarsely reticulated, and is thickly covered with long black hair; the central area reaches to the top of the oblique apex; is widest at the base; the bordering keel is turned up at its apex; the apex of the segment has an obliquely rounded slope, and is coarsely and stoutly reticulated. Mesopleuræ coarsely and closely punctured, thickly covered with black hair, largely tuberculate, through roundly bulging out at the top and bottom, there being a depression between the upper and lower portions. Mesosternum closely and strongly punctured, except at the base which is aciculated. Legs thickly covered with black hair; the hair on the tarsi rufous, and they also bear a fulvous pubescence. Wings dark violaceous, except for some small hyaline streaks in the discoidal and cubital cellules; the second cubital cellule at the top is slightly longer than the third. Abdomen ferruginous; the petiole and the apical segment, except at the base, black; the petiole is coarsely and deeply punctured, and covered with long black hair; the other segments are thickly fringed with orange hair; the hair on the black apical part of the last segment is black. The keel on the lower side of the petiole projects at its apex in a large tooth, which is rounded at the point and broader at the base; the apical ventral segment has an oblique, stout keel bordering the sides; the penultimate segment has a similar, but somewhat larger, keel on its apical half.

MUTILLA CRESSIDA, *sp. nov.*

*Nigra, capite thoraceque dense nigro-hirsutis; abdomine ferrugineo, basi apiceque nigris; alis violaceis.* ♂.

Long. 18 mm.

*Hab.* Ceylon (*Verbury*).

Scape of the antennæ punctured, covered with stiff white hairs ; the flagellum with a pale down. Head thickly covered with longish black hair ; the front in the middle, the lower part of the cheeks, and the sides of the clypeus, thickly covered with pale silvery depressed pubescence. Front and vertex strongly and deeply punctured, the puncturing more rugose below the antennæ ; in the middle of the vertex leading down to the ocelli is a smooth keel. Clypeus smooth and shining ; the sides and apex projecting all round, so that the central part appears hollowed out ; above it the hair is longer than it is on the vertex. Pronotum rugosely punctured above ; the middle with some stout irregular keels ; the lower part smooth. Mesonotum strongly and deeply punctured, thickly covered with longish, stiff, black hair ; the two furrows are wide and deep ; in the middle is a smooth shining keel. The scutellum is raised, rugosely punctured ; the middle is obliquely raised from the base to the apex ; is smooth and very shining ; this central part becomes gradually and slightly wider towards the apex, which distinctly projects ; the upper part is bare ; the lower fringed with long black hair. The post-scutellum has an oblique slope, is smooth and fringed with long black hair. The median segment bulges out roundly in the middle ; it is strongly reticulated except at the sides, which are almost smooth, and bordered on either side by stout longitudinal keels ; the central area is two-thirds of the length of the basal division, and does not reach to its apex ; the basal fourth is wider than the rest, and has the sides oblique ; the apex is rounded. The legs are thickly covered with black hair ; the calcaria and tarsal spines are also black. Wings uniformly dark violaceous ; the second cellule at the top

is slightly longer than the third ; the recurrent nervures are both received shortly beyond the middle of the cellules. The abdomen is ferruginous ; the petiole is black, strongly punctured, and covered with longish black hair; the ventral keel at the apex ends in a large, stout, oblique tooth ; the other segments are thickly fringed with ferruginous hair, and are sparsely punctured ; the apical half of the pygidium is black and covered with black hairs.

MUTILLA PHLENNNA, *sp. nov.*

*Nigra, abdominis segmentis 2—5 rufis ; alis fusco-violaceis, basi hyalinis ; medio scutelli laevo.* ♂.

Long. 12 mm.

*Hab.* Barrackpore (*Rothney*).

Scape of antennæ thickly covered with white hair ; the flagellum opaque. Front and vertex shining, strongly, but not very closely, punctured ; the front in the middle thickly covered with long white, the sides and vertex covered more sparsely with long fuscous hair. Face and clypeus smooth and shining ; the clypeus slightly obliquely narrowed from the middle to the apex. Mandibles black, thickly covered with long, pale silvery hair ; before the middle is a broad red band. Palpi dark fuscous. Pro- and meso-notum closely and strongly punctured, and thickly covered with long, dark fuscous hair. Scutellum hardly raised above the level of the mesonotum, strongly and deeply punctured, except in the middle, which is smooth and shining ; the apex of this shining band is widely furrowed. Median segment reticulated, the basal area is wide at the base, being there twice the width of the apex ; the wide part becomes gradually narrowed ; it is thickly covered with white pubescence, as are also the areae at its base ; the apex of the segment is shining, strongly closely reticulated and sparsely

covered with long fuscous hair. Propleuræ rugose above ; below are some stout oblique striations. Mesopleuræ rugose, the punctures running into reticulations ; the apex smooth ; the apical half of the metapleuræ reticulated ; mesopleuræ thickly covered with long white hairs. Legs thickly covered with white hairs ; the calcaria and spines pale. Wings fusco-violaceous ; the base distinctly hyaline ; the first cubital cellule at the top is very slightly longer than the second ; the first recurrent nervure is received shortly beyond the middle, the second shortly beyond the base of the apical third of the cellule. Abdomen ferruginous ; the petiole, except at its apex, and the apical two segments black ; the rufous segments are fringed with pale fulvous pubescence ; the middle and base with long white hair ; the pygidium covered with long pale hair ; the apical two ventral segments are stoutly keeled laterally.

MUTILLA IDVIA, *sp. nov.*

Long. 11—12 mm. ♂.

Hab. Barrackpore (*Rothney*).

Agrees in coloration of the body and wings with *M. phæma* ; may be known from it by the second cubital cellule not being distinctly longer than the third at the top ; by the central area being abruptly wider at the base, not becoming gradually narrowed ; and by the striae on the propleuræ being more widely separated.

Scape of antennæ thickly covered with silvery hair. Front and vertex closely and strongly punctured ; the front and the middle of the vertex thickly covered with silvery pubescence. Clypeus smooth, shining and glabrous. Mandibles at the base thickly covered with silvery pubescence ; the basal tooth large. Palpi dark fuscous. Pronotum closely rugosely punctured. Meso-

notum more shining, the punctures larger, deeper, and more widely separated, and covered with fuscous pubescence. Scutellum rugosely punctured; the middle smooth, shining and glabrous; the smooth part gradually and slightly widened towards the apex. Median segment at the base and middle thickly covered with pale pubescence; the central area has the basal third abruptly widened; the sides of the widened part at the apex oblique. The apex of the segment is closely and strongly reticulated. On the propleuræ are six stout, distinctly separated striæ; the upper pair do not reach to the apex. Mesopleuræ in the middle strongly punctured and thickly covered with white hair. Metapleuræ, except at the base, strongly reticulated. Wings distinctly hyaline at the base behind the transverse basal nervure, the first cubital cellule at the top is equal in length to the second; the first recurrent nervure is received near the base of the apical third; the second shortly, but distinctly, beyond the middle. On the abdomen the apex of the petiole, the second, third, fourth and fifth segments are ferruginous and banded with pale fulvous hair on the apices; the pygidium is punctured, smooth and shining in the middle; the apical two ventral segments are stoutly keeled laterally.

MUTILLA SABELLICA, sp. nov.

*Nigra, abdomine ferrugineo, basi apiceque nigris; segmento mediali dense albo-piloso; alis fusco-violaceis.* ♂.

Long. 14 mm.

Hab. Barrackpore (Rothney).

Scape of antennæ pilose, thickly covered with long white hair, the flagellum with short pale pubescence. Vertex sparsely covered with long white hair; strongly, but not very closely, punctured; the space behind and on the sides of the ocelli smooth; the ocellar region distinctly

raised ; the front is thickly covered with longish white hair, which hides the texture ; the lower orbits and the oral region even more thickly pilose, and with the hair, if anything, longer. Mandibles large, shining ; the tubercles large, shining, smooth, rounded ; the area between the middle and hinder legs elongate, narrowed gradually towards the apex ; the sides stoutly keeled. Mesonotum strongly punctured, the punctures becoming larger towards the apex ; at the base is a smooth flat keel in the middle. Scutellum pyramidal, more strongly and deeply rugosely punctured than the mesonotum ; its base covered with long black, the apex with longer pale hair. Post-scutellum smooth, the sides covered with long pale hair. Median segment stoutly reticulated ; the reticulations smaller and closer on the apex ; the base thickly covered with depressed white hair, which almost hides the texture in the middle ; the central area is large, wide, and extends to the apex ; its apical third at base oblique, densely covered with silvery pubescence, the apex curved ; the lower apical tooth large, three times as long as the upper, which is bluntly triangular ; the lower basal tooth is large, oblique, and somewhat triangular in shape. The eye incision is rounded on the inner side. Prothorax thickly covered with white hair ; above rugosely punctured ; the apex of the propleuræ smooth ; the base with nine irregular, stout, clearly separated striæ. Mesopleuræ thickly covered with longish white pubescence, strongly, but not very deeply, punctured, the apex smooth. Metapleuræ reticulated, the base smooth. Mesosternum thickly covered with long white hair, its base roundly incised in the middle, the sides appearing as two narrowed and rounded parts ; the apical slope is covered with long pale hair. Legs thickly covered with white hair ; the calcaria

pale; the tarsal spines pale rufous. Wings fusco-violaceous, the extreme base paler; the second cubital cellule at the top is slightly, but distinctly, longer than the third; the second transverse cubital nervure is roundly curved; the first recurrent nervure is received near the base of the apical third; the second near the apical fourth; the second recurrent nervure is obliquely bent at top and bottom, straight; the lower abscissa is the larger. Abdomen ferruginous; the petiole and the apical segment black; the petiole and the base of the second segment are thickly covered with long white hair; the middle segments are fringed with long fulvous hair; the ventral keel has an oblique slope, its apex has a rounded tooth. Pygidium strongly punctured, except in the middle; the hair is long and black; the hypopygium bears two large teeth, which are roundly curved above.

MUTILLA LABIENA, *sp. nov.*

Long. 14 mm. ♂.

*Hab.* Barrackpore (*Rothney*).

Agrees in form, size, and coloration with *M. sabellica*. The differences between the two are best shown in syn-optical form.

Propleurae irregularly striated; central area on median segment reaching to the apex of truncation, not triangularly narrowed; the keels on the hypopygium triangularly raised towards the apex. *sabellica*.

Propleurae regularly and stoutly striated; the central area on the median segment triangularly narrowed, (V-shaped), not reaching to the end of truncation; the keels on the hypopygium not much raised towards the apex. *labiena*.

Scape of antennae thickly covered with long white

hair; the flagellum with a pale microscopic down. Vertex strongly, but not closely, punctured; the part at the sides of the ocelli impunctate; the hair long and white. Front thickly covered with long white hair, which is longer above and between the antennæ. Face smooth, finely transversely striated over the clypeus, which is flat in the middle. Base of mandibles covered with silvery pubescence; the middle below with long golden hair. Palpi dark testaceous. Pronotum closely punctured and thickly covered with long white hair; mesonotum more strongly, and not so closely, punctured and thickly covered with fuscous pubescence. Scutellum large, pyramidal, coarsely and deeply punctured; at the base thickly covered with dark, the apex with much longer white hair; in the middle on the basal slope is an irregularly twisted, smooth keel. Median segment stoutly irregularly reticulated, except on the sides of the basal area at the base; the area does not reach quite to the apex of the basal part of the segment, is V-shaped with the apex rounded; the apical slope is coarsely reticulated with a keel down the middle. Propleuræ obliquely striated; the apex smooth and raised. Mesopleuræ coarsely punctured; thickly covered in the middle with long white hair; the apex smooth and glabrous. Mesosternum smooth, shining, sparsely punctured; the area stoutly keeled down the sides; the keels converging towards the apex. Legs thickly covered with long white hair; calcaria white. Wings violaceous; the first cubital cellule at the top is about one-fourth longer than the second; the first recurrent nervure is received shortly beyond the middle; the second in the apical fourth. Abdomen ferruginous; the petiole and the apical segment for the greater part black; the middle segments thickly covered with long fulvous hair; the last segment with the hair paler; it is smooth down the

middle, and is strongly punctured; the oblique lateral keels on the hypopygium stout, and of uniform height throughout; the basal ventral keel is uniformly depressed; the apex is only very slightly more raised than the base.

MUTILLA MORNA, *sp. nov.*

*Nigra, apice petioli abdominisque segmentis 2—5 ferrugineis; capite thoraceque dense albo-pilosus; alis violaceis, cellula cubitali 1-a multo longiore quam 2-a.* ♂.

Long. 14 mm.

*Hab.* Tirhoot, Bengal (*Rothney*).

Scape of antennæ covered sparsely with long white hair; the flagellum thickly with a fine pile. Front thickly covered with silvery pubescence and with long silvery hair; strongly, but not very closely, punctured; the vertex is similarly punctured and more sparsely covered with long fuscous hair; the ocellar region distinctly raised. Face in the middle smooth, shining, bare; keeled in the middle; above the clypeus is a row of large, deep, round foveæ; the sides and cheeks are thickly covered with long silvery hair. Mandibles at the base thickly covered with silvery hair, the palpi blackish, thickly covered with white pubescence. Pronotum strongly punctured, thickly covered with white hair; the propleuræ smooth and bearing eight stout keels, which are placed at about equal distances from each other, except the lower pair which are more closely approximate. Mesopleuræ thickly covered with silvery hair; the basal half reticulated. Metapleuræ thickly covered with long silvery hair; the base smooth, the apex reticulated. Mesosternum thickly covered with long silvery hair; smooth in the middle; the area is stoutly keeled down the middle and is smooth and shining. Mesonotum shining, strongly, but not very

closely, punctured, the base thickly covered with long white hair; the rest of it less thickly with shorter, stiffer, black hair. Scutellum pyramidal, strongly, rugosely punctured, except for a smooth line in the middle on the top; the base covered with long black, the apex with much longer pale, hair. The basal part of the median segment is densely covered with depressed silvery hair, and more sparsely with longer silvery hair; reticulated; the median area has the basal third widened, its sides straight, obliquely narrowed, its apex raised; the apex is closely irregularly reticulated and is thickly covered with long white hair. The first cubital cellule at the top is twice the length of the second; the second transverse cubital nervure has the upper three-fourths roundly curved; the lower part is straight, bullated; the first recurrent nervure is received at the base of the apical third of the cellule; the second nearer the middle. Abdomen thickly covered with white longish pubescence; the apex of the petiole, the second, third, fourth, and fifth segments ferruginous; the pygidium thickly covered with long black hair; the apex in the middle smooth; the ventral keel has a slight rounded curve, and does not project at the base or apex; the lateral keels on the hypopygium not much raised; those on the penultimate segment more distinct.

MUTILLA FUNEBRANA, *sp. nov.*

*Nigra, abdomine ferrugineo, petiolo, segmentisque 5—7 nigris; alis violaceis, basi fere hyalinis.* ♂.

Long. 13 mm.

Hab. Barrackpore (*Rothney*).

Scape of antennæ thickly covered with long white hair; the flagellum with a pale down. Front and vertex strongly punctured; the former thickly covered with

silvery pubescence, intermixed with long silvery hair ; the vertex sparsely with long white hair. Face and clypeus smooth and shining ; the latter with a deep furrow on the top and with two foveæ on the sides above. Mandibles at the base thickly covered with silvery pubescence ; palpi dark fuscous. Pronotum strongly and deeply punctured, except at the base, which is smooth and shining. The apex of the propleuræ is smooth and thickly covered with a white pile ; there are nine stout keels equally separated. Mesonotum closely and strongly punctured and thickly covered with stiff black hair. Scutellum rugosely punctured except for a broad smooth line in the middle ; its base sparsely covered with black, the rest with long white, hair. Post-scutellum rugose, and covered with long white hair. Median segment at the base thickly covered with depressed silvery pubescence ; it is reticulated, except along the sides of the central area, which is not much widened at the base ; the keels there are straight ; the oblique apical slope is strongly reticulated and covered with long white hair. The base of the mesopleuræ rugose and thickly covered with white hair ; the apex of the metapleuræ irregularly reticulated. Mesosternum thickly covered with white pubescence. Legs thickly covered with long white hair ; the calcaria white. Wings dark violaceous ; the first cubital cellule at the top is slightly, but distinctly, longer than the second ; the second transverse cubital nervure is roundly curved ; both the recurrent nervures are received shortly, but distinctly, beyond the middle. Abdomen with the second, third, and fourth segments ferruginous, densely covered with white hair ; the third and fourth with golden hair on the apex ; the last segment with black hair. The ventral keel has a slight, rounded slope from the base to the apex ; the hypopygium is smooth at the base ; the lateral keels are stout and do not reach the base.

MUTILLA SERENA, *sp. nov.*

*Nigra, capite thoraceque dense longe albopilosis, abdominis segmentis 2—4 rufis; alis fusco-violaceis.* ♂.

Long. 12 mm.

Hab. Barrackpore (*Rothney*).

Scape of antennæ thickly covered with long white hair; the flagellum with a pale down. Vertex strongly punctured, more sparsely at the sides of and behind the ocelli; thickly covered with long white hair; the front is not so strongly punctured and much more thickly covered with longer pale hair. Face smooth, shining, glabrous and broadly carinate in the middle. Clypeus smooth, shining, depressed broadly at the apex and behind, except in the middle. Mandibles at the base thickly covered with silvery pubescence. Pronotum coarsely reticulated; its base smooth; propleuræ rugosely punctured; the middle with widely separated keels; the apex smooth. Mesopleuræ in the middle punctured, the punctures running into reticulations, and thickly covered with long white hair. Apex of metapleuræ irregularly reticulated. Mesosternum thickly covered with long white hair; the metasternal area shining, smooth, stoutly keeled down the middle and less distinctly laterally. Legs thickly covered with white hair; the spurs white; the tarsal spines rufous. Wings uniformly violaceous; the first cubital cellule is, at the top, one-fourth longer than the second; the second transverse cubital nervure is sharply elbowed shortly above the middle; the first recurrent nervure is received near the base of the apical third, the second shortly beyond the middle. Petiole black, except at the apex, shining, punctured, covered with long white hair; the ventral keel has a shallow broad curve, and is slightly more raised at the apex than at the base. The middle segments are covered with fulvous hair; the fifth and sixth with white,

the apical with black hair; the hypopygium is stoutly keeled laterally; the keels are not much raised towards the apex. The basal region of the median segment is thickly covered with silvery pubescence, and is reticulated; the central area reaches to the apex of the truncation; the basal third is wider than the rest; the keels there bulge roundly outwardly.

In size and in having only the second, third, and fourth abdominal segments red, this species agrees with *M. eleonyma*; the latter species may be known by the propleuræ being more strongly, regularly and closely punctured; by the central area on the median segment not being so wide at the base; by the penultimate ventral segment being stoutly keeled laterally; and by the second transverse cubital nervure being roundly curved, not elbowed.

MUTILLA CLEONYMA, *sp. nov.*

*Nigra, abdominis segmentis 2—4 ferrugineis; medio scutelli laevo; alis fusco-violaceis.* ♂.

Long. 13 mm.

*Hab.* Barrackpore (*Rothney*).

Scape of antennæ covered with silvery-white pubescence; the flagellum with a black down; its middle joints slightly dilated. Front and vertex closely and strongly punctured; the vertex covered with longish fuscous hair; the vertex in the middle with a broad band of silvery pubescence. Face and clypeus smooth and shining; the former broadly keeled in the middle. Base of mandibles thickly covered with silvery hair; the basal tooth stout. Pronotum strongly and closely punctured, covered with long fuscous hair; the mesonotum with shorter, thicker and darker hair, its punctures are deeper and more widely separated. Scutellum pyramidal, closely and strongly

punctured, except in the middle; it is covered with long hair, that on the apex is longer and paler. Post-scutellum aciculated. Median segment reticulated; at the base thickly covered with white pubescence; the basal third of the central area is widened; the lateral keels roundly curved; the apex of the segment is strongly reticulated. On the propleuræ are seven stout, distinctly separated striæ; the second is indistinct, the middle one not half the length of the others. Wings uniformly dark fusco-violaceous; the second cubital cellule at the top is shortly, but distinctly, longer than the third; the first recurrent nervure is received near the base of the apical fourth; the second near the base of the apical third. Legs thickly covered with white hair; the calcaria and spines pale. Abdomen black; the apex of the petiole, the second, third, and the fourth segments, ferruginous; the middle segments fringed with fulvous hair; on the pygidium in the middle is a smooth, slightly raised part; the apex is smooth and depressed in the middle; the hypopygium is keeled laterally at the apex.

In Bingham's table (p. 9) this species forms a new Section: "Second to fourth segments red."

#### MUTILLA MACULICORNIS, *sp. nov.*

*Nigra, dense albo-pilosa; antennis rufo-maculatis; abdomine ferrugineo, apice nigro; alis fusco-violaceis, basi hyalinis. ♂.*

Long. 13 mm.

*Hab.* Barrackpore (*Rothney*).

Antennæ black; the base and apex of the scape and the base of the flagellum rufous; the apical joints of the flagellum brownish beneath; the scape shining, punctured, sparsely covered with white hair; the flagellum opaque, covered with a white microscopic down; the third joint is

shortly, but distinctly, longer than the fourth. The front and oral region densely covered with silvery hair; the vertex more sparsely with longer fuscous; the front and vertex strongly, but not very closely, punctured; the antennal keels distinct, sharp. Clypeus smooth and shining, largely projecting above; the lower half obliquely depressed, glabrous, somewhat triangular in shape, the middle depressed; mandibles rufous in the middle; the base punctured, densely covered with pale golden hair; the palpi brown, darker above. Pronotum densely covered with silvery pile, intermixed with long silvery hairs; the mesonotum shining, strongly, deeply and closely punctured, the punctures forming distinct rows; the two furrows are deep, the hair is thick and blackish. Scutellum roundly raised; deeply punctured; covered with long fuscous hair; its apex is oblique; in the middle of the basal half is a smooth shining line, bluntly lanceolate at the apex. Median segment closely reticulated; the basal part thickly covered with depressed silvery pubescence; the central basal area is elongate; the basal third wider than the rest. Propleuræ marked with stout keels, the apex smooth; the central part of the mesopleuræ irregularly punctured, and thickly covered with white hair; the metapleuræ at the base smooth above; the lower part irregularly, and not very strongly, reticulated; the rest distinctly, but not very closely, reticulated. Legs thickly covered with white hair; the spines and calcaria pale. Wings fusco-violaceous; the second cubital cellule at the top is slightly longer, at the bottom twice the length of the third; the first recurrent nervure is received at the base of the apical third; the second in the middle of the cellule. Abdomen ferruginous; the apical half of the penultimate and the whole of the last segment black; all the segments sparsely covered with long white hair; the petiole is rather strongly

punctured; its basal teeth are stout; the ventral keel is large; the basal half roundly depressed; the apex projects more and is depressed in the middle; its apical part is longer and projects more than the basal. The pygidium is strongly punctured, except in the middle, which is smooth and shining; its apex is depressed and more or less rufous.

MUTILLA POESIA, *sp. nov.*

*Nigra, pronoto, scutello segmentoque mediali rufis; alis fusco-hyalinis, nervis nigris.* ♂.

Long. 7 mm.

Hab. Barrackpore (*Rothney*).

In Bingham's arrangement (p. 10) under C this species might form a new "Section c.: Thorax anteriorly and posteriorly red."

Scape of antennæ thickly covered with long white hair; the flagellum thickly with pale down; stout; the third joint shorter than the fourth. Head black; if anything, narrower than the thorax; the front broadly and distinctly furrowed down the middle, strongly and closely punctured, and thickly covered with white hair; the ocellar region raised, the raised part extending behind to the occiput and obscurely punctured; the sides of the vertex strongly punctured. Occiput sharply margined. Pro- and meso-notum shining, strongly punctured; the pronotum red above, except on the outer edges behind and the base laterally; it is thickly covered with longish white hair. Mesonotum shining, strongly and deeply punctured; the furrows obsolete. Scutellum rufous, strongly and deeply punctured and covered with long pale hairs. Metathorax entirely rufous; the median segment strongly reticulated; the basal central area is as long as it is wide; the sides straight; the apex triangular; the keels issuing

from the lateral angles are stouter than the others ; the area is depressed ; the apex has an abrupt oblique slope. The base of the propleuræ punctured, the rest stoutly striated. Mesopleuræ strongly and closely punctured, shining and covered with long white hair. Metapleuræ roundly projecting, strongly and deeply punctured, and covered with long white hair. Legs thickly covered with white hair ; the calcaria and tarsal spines pale. Wings fusco-hyaline, short, the radial nervure straight and oblique at the base ; the apex roundly curved ; the second cubital cellule is irregular, much narrowed at the top : five-angled, distinctly angled in the middle below ; the first transverse cubital nervure is straight and sharply oblique, the second is broadly and roundly curved ; the third is faint and is angled shortly above the middle. Abdomen deep black ; closely and strongly punctured ; thickly covered with white hairs ; the basal three segments with a fringe of white hair on their apices. Pygidium strongly and deeply punctured. The basal ventral segment strongly punctured, the middle smooth ; the hypopygium closely punctured.

MUTILLA LUDOVICA, *sp. nov.*

*Nigra, prothorace mesonotoque rufis; flagello antenarum subtus brunneo; abdominis segmentis albo-fasciatis; alis hyalinis, nervis nigro-fuscis.* ♂.

Long. 6 mm.

*Hab.* Barrackpore (*Rothney*).

Scape of antennæ black ; hollowed beneath, the sides sharply keeled ; the flagellum brownish, black above ; the third and fourth joints are almost equal in length. Head broad, not much developed behind the eyes, which are large. Vertex deeply, but not closely, punctured, shining ; the ocellar region raised, depressed in the middle ; the

front ocellus distinct ; the hinder not so distinctly visible, being placed on the lateral slope of the raised part ; the vertex is sparsely, the front thickly, covered with long white hair ; the latter has a narrow furrow in the middle. Thorax black ; the prothorax and the mesonotum, except behind, red. Prothorax large ; coarsely and deeply punctured and covered rather thickly with white hair ; the upper part of the propleuræ punctured ; the middle with four stout, somewhat oblique keels. Mesopleuræ coarsely and deeply punctured, except behind ; below the middle, behind the punctured part, are some oblique striæ. The apical part of the metapleuræ with shallow, oval reticulations ; on the lower part at the base are three round foveæ in a curve, the middle one being the larger. Meso-sternum punctured, thickly covered with longish silvery hair. Wings hyaline ; the basal abscissa of the radius straight, oblique, the apical roundly curved above ; the second cubital cellule at the top is half the length of the third ; the second transverse cubital nervure is roundly curved ; the third cellule is triangularly dilated in the middle ; the third transverse cubital nervure and the second recurrent nervure are faint. Legs thickly covered with white hair ; calcaria pale. Abdomen black, the dorsal surface with a faint, but distinct, blue-violet tint ; the petiole broad ; the sides at the base obliquely projecting into stout teeth, which are curved outwardly at the base ; it is covered with long white hair ; at the apex thickly fringed with silvery pubescence ; the second segment has a similar fringe ; the others are fringed with long hair at the apex and are sparsely haired all over ; the hypopygium is not defined ; the segment is punctured and covered with long black hair. The basal ventral segment is punctured strongly ; the sides have an oblique slope ; the second segment has an oblique slope on the

base; the epipygium is strongly and deeply punctured and covered with blackish hair.

Belongs to Bingham's "Section C," and comes near to *M. provida* Cam. The two parapsidal furrows are wide and deep; the scutellum is flat, rounded, and strongly punctured; the median segment has a gradually rounded slope and is coarsely reticulated all over; the central basal reticulation is longer than it is broad, its base squarely dilated, the apex rounded. The tegulae are dull rufous, paler behind.

**MUTILLA OGLANA, sp. nov.**

*Nigra; abdomine ferrugineo, apice nigro; alis fuscis, basi fere hyalinis.* ♂.

Long. 11—12 mm.

*Hab.* Ceylon (*Yerbury*).

Scape above thickly covered with long silvery hair; the flagellum with a fuscous down; the third joint is distinctly longer than the fourth. Front and vertex strongly, but not closely, punctured; the front thickly covered with silvery pubescence, intermixed with long fuscous hair; the vertex sparsely covered with long fuscous hair; between the antennae and the eyes is a thick patch of depressed silvery pubescence. Clypeus carinate in the middle, smooth and shining. Pronotum rugosely punctured, the base of the propleurae with stout keels, which reach to shortly beyond the middle. Mesonotum deeply rugosely punctured and reticulated; the punctures larger towards the apex; the furrows deep; the hair thick, black. Scutellum flattish above; rugosely punctured; its middle smooth and shining; post-scutellum finely rugose in the middle. Median segment reticulated, covered with long white hair; the central area wide, bluntly rounded at the apex; the base dilated; the apex has a rounded slope.

Mesopleuræ rugosely reticulated, and thickly covered with long white hair. Metapleuræ reticulated irregularly at the apex. Mesosternum smooth and shining; the sides punctured; the base with a triangular depression. Legs thickly covered with white hair; the calcaria pale. Wings fuscous, with a violaceous tinge; the nervures are fuscous; the second and third cubital cellules at the top are equal in length; the base, especially behind the transverse basal nervure, is hyaline. Abdomen rufous, the apical segment black; the segments at the apex densely clothed with bright fulvous pubescence; the base of the pygidium is strongly punctured, as are also the sides; the middle, except at the base, is smooth; the apex is broadly rufous in the middle. The apex of the ventral keel is depressed; the hypopygium is broadly depressed in the middle to near the base, the depression there being rounded; the outer sides of the segment are rounded; at the base are two foveæ.

MUTILLA ILLA, *sp. nov.*

*Nigra, capite thoraceque dense albopilosis; abdomine ferrugineo, apice nigro; alis violaccis, basi hyalinis.* ♂.

Long. 8 mm.

*Hab.* Barrackpore (*Rothney*).

Scape of antennæ sparsely covered with grey hair; the flagellum densely with white down. Front densely covered with silvery pubescence, which hides the sculpture; the vertex closely punctured, covered with longish fuscous hair. Face and clypeus smooth and shining, laterally covered with long white hair. Mandibles broadly rufous behind the teeth. Palpi dark testaceous. Pronotum densely covered with dark silvery hair; punctured; propleuræ irregularly striated, except at the apex. Mesonotum strongly and deeply punctured; covered with blackish

hairs. Scutellum roundly convex, rugosely punctured, covered with long blackish hair; the post-scutellum with longer pale hair. Median segment reticulated; the basal part thickly covered with depressed white pubescence; the central area short, its apex triangular; the apical slope is covered with long white hair, and is reticulated; the mesopleuræ, except at base and apex, rugosely punctured and thickly covered with long white hair; the apex of the metapleuræ irregularly reticulated. Legs thickly covered with white hair; the hair on the fore tarsi fulvous; the calcaria pale. Wings fusco-violaceous; the base of both wings hyaline; the radial cellule wide; the basal abscissa of the radius has an oblique slope; the apical one is almost straight; the second cubital cellule is slightly longer than the second on the top; the second transverse cubital nervure is roundly curved; the third sharply angled in the middle. Abdomen ferruginous, the apical segment black; the middle segments thickly covered with bright fulvous pubescence; pygidium densely covered with long fuscous hair; the ventral keel is indistinct, straight, of equal height; the apical two segments without keels.

Forms a new Section in Bingham's table, p. 9: "First to sixth segments red."

MUTILLA FOVEATA, *sp. nov.*

*Nigra; abdomine rufo, basi apiceque nigris; alis fuscis, fere violaceis, nervis fuscis.* ♂.

Long. 13 mm.

*Hab.* Ceylon (*Verbury*).

Head black; thickly covered with long grey hairs and with a silvery down; the front and vertex strongly, but not closely, punctured; the clypeus distinctly keeled in

the middle; the top of the keel dilated, and with an elongated fovea in the middle; this part is smooth, shining and glabrous; the sides are thickly covered with silvery hair; the mandibles are rufous in the middle and fringed with long golden hair; they have one large tooth. Palpi fuscous. Antennæ stout; the third joint is slightly longer than the fourth. Pronotum, except at the base, rugosely punctured; the pleuræ slightly hollowed, and indistinctly marked with some stout striations. Mesopleuræ in the middle coarsely punctured, and thickly covered with white hair. Metapleuræ at the base smooth, its lower side indistinctly reticulated; the apex with large reticulations. Mesonotum shining, bearing all over large, deep punctures and covered with moderately long black hair; there are two furrows. Scutellum coarsely rugosely punctured; roundly raised; covered with long hairs, which are fuscous at the base, longer and paler on the apex; in the centre of the basal half is a flat, smooth, shining, cone-shaped space. Median segment reticulated; thickly covered with long pale hairs; the base also with a depressed silvery down; the central area is large and reaches to the middle; its apical half is narrowed; in the centre of the basal half is an indistinct longitudinal keel; the apex of the segment is oblique. Legs thickly covered with white hair; the spurs and spines white. Wings fuscous, slightly violaceous; the nervures fuscous; the second cubital cellule at the top and bottom is longer than the third, especially beneath; the first recurrent nervure is received at the base of the apical third, the second at the base of the apical fourth of the cellule; the second transverse cubital nervure is sharply angled shortly above the middle. Abdomen ferruginous; the petiole, except at the apex, and the apical two segments, black; the petiole is strongly, but not closely, punctured; the middle segments are fringed with

long golden hair; the hair on the apical segments is black; the middle of the last segment is glabrous and smooth. The keel on the under side of the petiole is straight, rounded at the base and apex.

MUTILLA ERXIA, *sp. nov.*

*Nigra, apice petioli abdominisque segmentis 2—4 ferrugineis; metanoto dense argenteo-piloso; alis fusco-violaceis, basi hyalinis.* ♂.

Long. 12 mm.

*Hab.* Barrackpore (*Rothney*).

Scape sparsely covered with long fuscous hair; the flagellum with a pale down; the third and fourth joints are of equal length. Head thickly covered with silvery pubescence; the front and vertex also with long silvery hair, most thickly on the front; the vertex shining, strongly, but not closely, punctured; the ocellar region raised. Clypeus smooth at the apex, the rest minutely transversely striated; the apex has the sides oblique; the middle slightly waved. Mandibles thickly covered with long fulvous and silvery hair; their middle rufous. Pronotum closely and strongly punctured, and thickly covered with long fuscous pubescence. Mesonotum shining, sparsely covered with stiff fuscous hairs; strongly, but not closely, punctured; the central furrows are wide and deep; the lateral narrower and not so well marked. Scutellum rounded, not much raised above the level of the mesonotum, coarsely and deeply punctured, except in the middle which is smooth, shining and glabrous, the sides are sparsely covered with long black hairs. Median segment thickly covered with depressed silvery pubescence, which almost hides the reticulations; the central basal area has the basal third wide, with the sides straight; from there it becomes narrowed; the sides of the segment are

bordered by a shining keel. Propleuræ stoutly, but not closely, obliquely striolated; the mesopleuræ strongly punctured, except at the base and apex; the metapleuræ reticulated, with the base smooth. Mesosternum smooth, the sides punctured; the middle with a fine keel. Wings fusco-violaceous, the base almost hyaline; the second cubital cellule at the top is not much longer than the third; the recurrent nervures are received shortly beyond the middle; the radial cellule is wide; the basal abscissa of the radius is oblique, straight; the upper part of the apical has a slight, the lower an acute slope. Legs thickly covered with white hair; the calcaria pale. The apex of the petiole, the second, third, fourth, and base of the fifth segments are ferruginous; the segments fringed thickly with silvery hair; the apical segments also with long, stiff, black hairs; the middle of the pygidium smooth; the apex is reddish and curved upwards. The ventral keel is stout and has a slightly rounded slope; the sides of the two apical segments are bordered by stout keels.

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The two following species are from Japan.

MUTILLA MIKADO, *sp. nov.*

*Nigra, thorace supra rufa; abdomine longe aureo-pilosus.* ♀.

Long. 12—14 mm.

Antennæ stout, black, the scape covered with long white hair. Head large, slightly, but distinctly, wider than the thorax; largely developed behind the eyes; rugosely punctured; sparsely covered with long, stiff, black hair. Eyes small. Thorax quadrangular, not very much longer than the head; the sides straight; the base and apex transverse; the sides rounded; above strongly punctured, dark ferruginous, thickly covered with long

black hair. Pleuræ black, smooth and shining, bare. Legs black, thickly covered with white hair; the calcaria pale. Abdomen not much longer than the head and thorax united; the apices of the basal three segments thickly fringed with long, pale golden hair.

MUTILLA JAPONICA, *sp. nov.*

*Nigra, thorace rufo; pedibus rufis, apice femorum apiceque tibiarum late nigris.* ♀.

Long. 7 mm.

*Hab.* Hakodatè, Japan (*Mr. George Lewis*).

Antennæ black, the apex of the scape and the second joint rufous; the flagellum attenuate at base and apex. Head slightly wider than the thorax; rugosely punctured, sparsely covered with long black hairs. Clypeus projecting obliquely from the base to the apex, the lower part perpendicular; mandibles rufous, the apical part black, long, without a tooth; clearly separated. Thorax with the sides above straight, not contracted; the base above black; rugose, the base and apex bearing long black hairs; the apex has a sharp oblique slope, and is black in the middle above. Pleuræ smooth and shining, sparsely covered with long white hair. Legs rufous; the apical half of the fore femora, and nearly the apical half of the four hinder, the fore tibiæ, except at the base, and nearly the apical half of the four hinder, and the base of the tarsal joints, black; the spines on the four hinder tibiæ are stout and blackish; on the tarsi dark testaceous; the calcaria pale. Abdomen not much longer than the head and thorax united; black, the base of the petiole rufous. An oval mark on the base of the second segment in the middle; the apex of the second segment and the greater part of the third segment covered with pale ful-

vous pubescence ; the pygidium is closely, longitudinally striated ; the petiole is rufous beneath ; the keel is indistinct.

Comes near to *M. ardescens* Smith ; that species may be separated from it by the ferruginous antennæ ; by the tips of the femora only being darker ; and by the sides of the thorax being "rugose-punctate."

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In working through the Khasia Hymenoptera I have noticed the following omissions from the "Fauna of British India."

*Mutilla intermedia* Saussure, *Ann. Soc. Ent. Fr.*, Tome vii. (1867), 354. Ceylon.

*Gorytes fœcarius* Handlirsch, *Sitzgungsber. K. Akad. Wiss. Wein*, Bd. 104, Abth. 1, p. 890 (1895). 1895-90. Pegu.

If the Nicobar Islands are included in the scope of the work (and they are quite as much part of "British India," politically and zoologically, as Ceylon), the undernoted species should also be included :

*Polistes novarae* Saussure, *Reise der Novara, Hymen.* p. 19, f. 13, 14.

*Larrada insularis* Saussure, *ibid.* p. 73, f. 43.

## POMPILIDÆ.

### POMPILUS CEYLONENSIS, sp. nov.

Long. fere 6 mm.

*Hab.* Ceylon (*Rothney*).

This Ceylonese species comes near to *P. taprobanæ*, but is smaller, is more slenderly built, and more densely pruinose all over ; the wings are darker coloured all over ; the upper half of the apical abscissa of the radius has a much more distinct angle, the upper and lower halves being more distinctly defined ; the second cubital cellule at the top is longer compared with the first, and the second recurrent nervure is received distinctly behind the middle.

Antennæ stout, the flagellum densely covered with white pubescence. Head densely pruinose all over, which gives it a white appearance ; the eyes hardly converge at the top ; the hinder ocelli are separated from each other by a slightly greater distance. Apex of clypeus trans-

verse, the sides oblique. Mandibles rufous, their base black, and thickly covered with depressed silvery pubescence; the palpi are dark brown. Thorax densely covered with silvery pile; the prothorax is obliquely depressed on the apex; the base is distinctly separated from the others. Mesothorax thickly covered with silvery pile; the scutellum and post-scutellum are more shining and minutely punctured; there is a shallow oblique furrow on the mesopleuræ. The median segment has a gradually rounded slope; in the centre is a narrow shallow furrow. Wings fusco-hyaline, darker along the costa; the apex is infuscated from the end of the radial cellule; the radial cellule is wide to the third transverse cubital nervure; the apical abscissa of the radius has two oblique curves; the apex forms an acute angle; the first transverse cubital nervure forms two curves, the upper being more sharply oblique; the second cubital cellule at the top is one-third of the length of the second; the two recurrent nervures are received shortly behind the middle. Legs densely pruinose; the calcaria dark testaceous. Abdomen densely pruinose, the segments darker at the base.

POMPILUS TAPROBAN.E, *sp. nov.*

*Niger, dense pruinosus; alis hyalinis, apice fumatis.* ♀.

Long. fere 7 mm.

One example, Trincomali, Ceylon (*Rothney*).

The lower part of the vertex and the oral region densely covered with a silvery pile; smooth and shining; the eyes at the top are separated by the length of the third antennal joint; the hinder ocelli are separated from each other by a slightly greater distance than they are from the eyes. Middle of clypeus transverse, the sides rounded. Pronotum large, rounded at the base, slightly

contracted at the apex. Metathorax densely pruinose; it has a gradually rounded slope to the apex, and has a shallow furrow in the centre, this furrow being wider on the apical slope. Wings hyaline, smoky from the end of the radial cellule; the apical abscissa of the radius has an oblique slope; the basal has the lower part straight, oblique, and has a slightly different slope; the first and third transverse cubital nervures have a gradually, distinctly rounded curve; the second is straight and is oblique; the second cubital cellule at the top is about one-fourth of the length of the first; both the recurrent nervures are received shortly beyond the middle; the second has a rounded curve; the first is oblique, straight. Legs pruinose; the calcaria dark testaceous; the spines black. Abdomen with pruinose bands; subsessile.

In Bingham's table on p. 148 this species comes into "b<sup>4</sup>" near *P. subsericeus*, which is a larger species (10 mm.), and may be known from it by the apical abscissa of the radius having only one curve; and by the second cubital cellule on the top being longer compared to the first. The tibial spines are few in number; the front pair have only two. I can discover no tooth on the claws.

## CRABRONIDÆ.

### TRYPOXYLON PYGMAEUM, sp. nov.

*Nigrum, flagello antennarum subtus brunneo, tarsis, tibiis anterioribus basique femorum posticorum rufo-testaceis; alis hyalinis, stigmate nervisque fuscis.* ♀.

Long. fere 5 mm.

Taken at Barrackpore by Mr. Rothney.

Antennæ stout, narrowed at the base. Front and vertex aciculated, covered with a silvery pile; the face more strongly aciculated; mandibles rufo-testaceous; the

palpi testaceous. Thorax black, shining, more or less thickly covered with silvery pubescence ; the pronotum with an oblique slope behind, distinctly separated from the mesonotum, which is indistinctly furrowed, except at the base ; the median segment is more strongly and distinctly aciculated. Propleuræ closely, minutely and distinctly punctured ; in the middle behind, is a deep, narrow, distinct, curved furrow. The base of the mesopleuræ strongly and closely punctured ; on the lower part at the base is a short, oblique, deep furrow, which is covered with silvery pubescence ; the middle fovea is large and deep. Metapleuræ strongly aciculated ; the furrow at the base is curved, moderately wide and deep ; on the upper side is a fine keel. Wings clear hyaline, the nervures fuscous. Abdomen black, shining.

This is the smallest of the Indian species, the smallest species hitherto described being *T. buddha*, which is 9 mm. in length. The median segment has no lateral furrows.

#### EVANIIDÆ.

##### AULACUS IRIDIPENNIS, sp. nov.

*Niger, scapo antennarum tibiisque anterioribus rufis ; alis hyalinis, macula substigmatali fusca.* ♂.

Long. 14 mm.

Antennæ short, distinctly thinner at the apex ; black ; the scape rufo-testaceous ; the second joint is thickly pilose ; is about one-half the length of the third ; both together are about as long as the fourth. Head shining, smooth ; the vertex sparsely covered with short fuscous pubescence ; the face and lower inner orbits thickly with white pubescence. The clypeus slightly projects in the middle ; the apex bluntly carinate in the centre, and oblique. Mandibles on the lower sides fringed with golden hair. The head is not much narrowed behind the eyes ; and is

broadly rounded; the occiput is margined. Pronotum at the base triangularly incised; the middle at the base depressed; margined; the surface is marked with stout, widely separated, transverse keels. Mesonotum broadly depressed in the middle; the sides bearing two lines of stout irregular keels. Scutellum with three large deep basal, and one smaller lateral foveæ; the apex has a stout transverse keel and a few short, longitudinal, indistinct ones. The sides of the post-scutellum are largely and deeply depressed. Metanotum stoutly, irregularly reticulated. Pro- and meso-pleuræ irregularly coarsely rugose; the apex of the latter irregularly reticulated and broadly depressed; the metapleuræ rugose at the base; the rest reticulated. Legs black; the four front tibiae rufotestaceous; the four hinder coxae transversely striated. Wings hyaline, iridescent; the nervures black; under the stigma is a large fusco-violaceous cloud, which extends to near the cubital nervure; there are only two transverse cubital nervures, the second is largely bullated; the first recurrent nervure is almost interstitial, the second is received at the base of the apical third of the cellule; the first and second discoidal cellules are of nearly equal length. Abdomen smooth and shining.

This makes the second species of *Aulacus* known from Continental India. Like the other Khasia species (*A. bituberculatus*) it belongs to the subgenus *Aulacinus*.

### BRACONIDÆ.

#### BRACONIDES.

##### SPINARIA TRIMACULATA, *sp. nov.*

*Nigra, capite, pro-mesothoraceque pallide flavis, mesonoto nigro-trimaculato; pedibus anterioribus flavo-testaceis; alis hyalinis, stigmate nigro.* ♀.

Long. 7; terebra 4—5 mm.

Antennæ black, slightly longer than the body. Front and vertex smooth and shining; the latter covered with long fuscous hair; the face rugose, sparsely covered with long fuscous hair; the clypeus bordered on the lower side with a distinct keel, above with a thinner one; the mandibular teeth black. Thorax smooth and shining; the mesonotal lobes black, except round the edges. Scutellum yellow, except the sides at the base. Postscutellum black. Median segment black, shining and covered with long white hair. Pleuræ smooth and shining; the furrow on the metapleuræ wide, deep, and narrowed in the middle. Wings hyaline, iridescent, their base with a slight fulvous tint; the costa and stigma black, as are also the nervures; the second cubital cellule at the top is more than half the length of the third; the recurrent nervure is interstitial. Abdomen black, except the sides of the petiole and the apical segments, which are testaceous; the base of the petiole is smooth; its apex has two united, somewhat oval, areæ, which have some stout, irregular keels inside. The second segment is raised and stoutly irregularly reticulated in the middle; with a keel down the middle, this keel being smooth and triangular at the base; its depressed sides are obliquely striated on the inner half; the second and third segments are closely rugose, the second almost rugosely striated; the securiform articulation stoutly striated or keeled; the lateral curved branch broader, shallower, indistinctly striated; the apex of the segment laterally is produced slightly behind, and is smooth and shining; the apex of the third is similarly, but more greatly produced; the apex of the segment is depressed; furrowed; the edge is pale; the penultimate segment is depressed, aciculated. The front legs are entirely testaceous; the middle pair testaceous, with the coxæ and trochanters black; the hind legs are

entirely black, with the spurs testaceous. The ventral surface testaceous.

A distinct species. The abdominal spines are not so strongly developed as usual.

BRACON PAUPERATUS, *sp. nov.*

*Luteus, antennis nigris; alis flavo-hyalinis, macula sub-stigmaticalii fusca.* ♀.

Long. 10; terebra 9 mm.

Scape of antennæ covered with bright fulvous hairs. Front and vertex smooth and shining; the latter sparsely covered with long fuscous hairs; the frontal furrow is wide and deep; the face thickly covered with long fulvous hair; the upper part of the clypeus is bordered by a distinct keel on the sides. The apex of the mandibles black; palpi fulvous. Thorax smooth and shining; the base of the middle lobe of the mesonotum raised in the middle and bordered by furrows; the furrow on the mesopleurae is wide, curved, and reaches from the base to the apex; the furrow on the metapleurae is wide, deep at base and apex. Legs thickly covered with fulvous pubescence. Wings yellowish hyaline, the apex smoky; at the base of the stigma is an oblique cloud which extends to the recurrent nervure and is continued narrowly along the nervure on to the prodiscoidal cellule; the second cubital cellule is not much shorter than the third. Petiole smooth; the central part obscurely shagreened and keeled down the middle; the basal plate on the second segment is smooth; its keel does not reach to the apex; the space on either side of it is obliquely striated; the securiform articulation is longitudinally striated; the apical segments are covered with long fulvous hair.

BRACON FIRMUS, *sp. nov.*

*Niger, prothorace, mesonoto, mesopleuris scutelloque rufis; alis fusco-hyalinis, stigma fusco. ♂. (?)*

Long. 7 mm.

Antennæ black ; the scape bearing long black hairs ; the flagellum almost bare. Front and vertex shining, smooth, the vertex covered with long black hairs ; the ocelli bordered by a distinct furrow ; the front has a wide and deep furrow, with oblique sides ; the face opaque, thickly covered with long fuscous hair ; the clypeus is bordered laterally by a wide and deep furrow ; the top by a narrow, shallow one. Mandibles rufo-testaceous, their teeth black ; the palpi pale testaceous, blackish at the base. Thorax smooth and shining ; the pro- and meso-thorax ferruginous, except the mesosternum and a large mark, interrupted narrowly in the middle, on the apex of the mesopleuræ. Metapleuræ thickly covered with long fuscous hair ; the basal slope of the mesosternum is red, except for a somewhat triangular black mark on either side at the apex. Legs black, the spurs white ; the tibiæ and tarsi thickly covered with white hair. Wings fusco-hyaline ; the stigma blackish ; the nervures fuscous ; the second cubital cellule is distinctly shorter than the third ; the second transverse cubital nervure is faint, and is bullated at the top and bottom. The base of the petiole is deeply depressed ; the apical part coarsely irregularly punctured, and keeled down the middle ; the depressed sides are obliquely striated at the base ; the apex rugose ; the second segment is irregularly rugosely striated ; the triangular base of the central keel, the triangular sides at the base and the apex, smooth and shining ; the lateral depression is bordered on the inner side by a stout keel ; on the outer edge at the base are

four foveæ. Securiform articulation stoutly striated, as are also the furrows on the other segments.

Agrees in coloration with *B. umbratilis* Cam. which may be known from it by the propleurae being closely punctured and striated at the apex; by the triangular base of the keel on the second segment being longitudinally rugose; and by the mandibles being black.

RHOGAS (?) MANDIBULARIS, *sp. nov.*

*Nigra, mandibulis, palpis pedibusque pallide testaceis; dimidio apicali tibiarum posticarum nigris; alis hyalinis, nervis stigmateisque nigris. ♂.*

Long. 9 mm.

Antennæ longer than the body, black, tapering towards the apex; the scape covered with long black hairs; the flagellum with a microscopic pile. Face closely, transversely, rugosely striated; the clypeus finely rugose; its apex rufous. Palpi pale testaceous. Mandibles rufous; the teeth black. Thorax entirely black; the mesonotum aciculated, covered with a pale microscopic down. Scutellum finely punctured and more thickly pilose than the mesonotum; the space at the sides of the post-scutellum striated. Median segment with a distinct keel down the middle; thickly covered with long white hair; the apical half irregularly reticulated. Propleuræ opaque, the base aciculated, the rest closely and finely punctured; the apex obscurely and irregularly striated. Mesopleuræ smooth and shining, the upper part at the base finely rugose; the metapleuræ above obscurely, below finely and distinctly, punctured. Mesosternum smooth and shining; furrowed down the middle; its base oblique with the furrow wider and shallower, and with a fine transverse keel at the apex. The pleuræ and sternum blotched with brown. Legs

testaceous, paler at the base; the hinder femora rufotestaceous; the apical half of the hinder tibiæ and the claws black. Wings hyaline, iridescent; the stigma and nervures black; the upper part of the præbrachial transverse nervure, and the lower part of the first transverse cubital are bullated; the second transverse cubital nervure is faint. The basal three segments of the abdomen are strongly alutaceous; the others smooth and shining; on the middle of the petiole is a keel which extends nearly to the apex; the ventral segments are smooth and shining.

[As I am not by any means certain if the species here described can be included in *Rhogas* I give a generic description of it.

Eyes distinctly incised on the inner side above; the head narrowed behind them. Occiput margined. Antennæ with over 50 joints. Wings with three cubital cellules; the probrachial nervure received shortly behind the middle of the cellule; the anal nervure interstitial. Stigma large; the second cubital cellule longer than broad. Parapsidal furrows distinct. Median segment keeled down the middle. Abdomen subsessile; keeled down the middle at the base; the basal three segments opaque, alutaceous, longer than the apical four, and becoming gradually shorter; the apical segments are smooth and shining. Mandibles short, bidentate.

The eyes are large, parallel, and reach near to the base of the mandibles; the clypeal incision is large; the occiput slightly, but distinctly, roundly incised; there is a short depression on the second and third abdominal segments behind the stigmas, and they are sharply margined at the sides; the third to fifth segments project sharply at the apices laterally; the second transverse cubital nervure is very faint, almost obliterated; the second cellule is slightly shorter than the first and not half the length of the third;

the hind wings have a stigma; their radius and cubitus are distinct; the probrachial nervure is received near the middle of the cellule; the abdomen is flat above; its apical half wider than the basal.]

DELMIRA, *gen. nov.*

Clypeus flat, its apex transverse. Head large, cubital; the occiput not margined; behind the eyes it is largely developed. Mesonotum with two short furrows at the base, where the part between them is raised. Wings with three cubital cellules; the transverse probrachial nervure is received behind the middle of the cellule and distant from the transverse præbrachial; the anal nervure not interstitial, and with a distinct upward curve at the base. In the hind wings the radius and the cubitus are complete; the probrachial nervures—longitudinal and transverse—are obsolete, unless the former be represented by a small upward turned nervure at the base of the wing, which unites with the cubitus, thus forming a small, closed cellule; the radius issues from the præbrachial below the subcostal which is thickened at the apex, this thickened part being incised in the middle above. Abdomen short; the securiform articulation obsolete; the second segment with a deep oblique lateral, and a small transverse depression; hypopygium cultriform.

This genus has the form and appearance of *Bracon*, from which it differs in the form of the clypeus, which is flat and not obliquely bent inwards, so that there is not a semicircular or round space formed by it and the mandibles. It is therefore doubtful if it could be included in the *Cyclostomi* with which it agrees in other respects; it differs from *Bracon* further in the anal nervure not being interstitial; the legs are more densely pilose and the hair is longer than in that genus.

DELMIRA TRIPLAGIATA, *sp. nov.*

*Lutea; antennis nigris; alis flavo-hyalinis, fusco-trimaculatis.* ♀.

Long. 15; terebra 22 mm.

Antennæ black, stout; the scape covered with long black hair. Front and vertex smooth and shining; the front and occiput covered with long, pale fuscous hair; the front slightly depressed, distinctly furrowed down the middle, the face depressed, broadly keeled down the middle, the keel broadened at the apex; clypeus very smooth and shining. Mandibles sparsely covered with long fulvous hair; the teeth black. Pro- and mesothorax smooth and shining, sparsely covered with long pale hair; metanotum also smooth, and with the hair thicker. Pleuræ smooth and shining, pilose; the part of the meso- under the tegulæ is triangularly raised; the meta- with a wide and deep, curved furrow, issuing from a depression near the base. Mesosternum smooth and shining, furrowed down the middle. Wings yellowish hyaline, the apex infuscated; the apex of the stigma, an oblique cloud at its base reaching near to the recurrent nervure, and an oblique one in the middle of the lower part of the prodiscoidal cellule, fuscous black. Legs thickly covered with long fuscous hair; the apices of the hinder tarsi blackish. Abdomen smooth and shining; the base of the petiole deeply depressed; the centre raised, bordered by a curved furrow; the sides thickly covered with long fuscous hair; the second segment has a deep, wide, oblique furrow on the sides at the base; the middle is indistinctly keeled, and has a short transverse depression shortly beyond the middle; the apical segments are thickly covered with long hair.

## ONTSIRA, gen. nov.

Occiput margined. Mesonotum trilobate, the middle lobe furrowed in the centre. Median segment with ten clearly defined areæ. Wings with three cubital cellules; the apical abscissa of the radius curved upwards; the transverse probrachial nervure interstitial; the anal nervure interstitial; the hind wings with only one longitudinal nervure. Head cubital; largely developed behind the eyes, but not projecting beyond them laterally. Oral region as in *Bracon*; the mandibles with a sharp apical tooth. Probrachial areolet as long as præbrachial; the radial nervure in hind wings obsolete; the probrachial cellule divided into two by a nervure.

The eyes are prominent and distinctly distant from the base of the mandibles; the antennæ have over twenty joints; the apical ones are broken off; on the under side of the mesopleuræ is a wide longitudinal furrow; the petiole is widely and deeply depressed at the base; the abdominal segments are smooth, without punctures or depressions of any kind; there is no securiform articulation; the separation of the segments is hardly distinguishable; the hinder coxæ at the base have a perpendicular slope and are roundly incised there, and in the centre beneath project into a short, somewhat conical, tooth; the trochanters are rather longer than usual; the four anterior tibiæ are slightly bent at the base; the calcaria are very short; the claws simple. In the hind wings the costal and præbrachial cellules are distinct; the probrachial nervure is united to the præbrachial; and in the middle of the probrachial cellule is an oblique nervure dividing it into two; the radius is obsolete; the cubitus complete, extending to the apex; the probrachial nervure is obsolete; the probrachial and the anal cellules being thus united into one.

This genus comes near to *Doryctes*, with which it agrees in some respects; but may readily be known from it by the transverse probrachial nervure being interstitial and consequently the præbrachial and the probrachial areolets equal in length, and by the probrachial areolet in the hind wings being divided into two by a transverse nervure. In *Doryctes* there are only five areae on the metanotum, instead of ten as in our genus. Characteristic is the curved apex of the radius and of the base of the cubital nervure.

ONTSIRA RETICULATA, *sp. nov.*

*Nigra; tegulis, trochanteribus basique tibiarum albis; tarsis testaceis; alis hyalinis, stigmate nervisque testaceis.* ♀.

Long. 6, terebra 3 mm.

Antennæ black; the flagellum densely covered with short stiff pubescence; the scape shining, sparsely haired. Head shining; below the eyes is a large, dirty-testaceous mark; front and vertex sparsely pilose; impunctate; the space over the antennæ is minutely, irregularly striated; there is a shallow, small, round fovea above each antenna; the face is strongly aciculated, especially in the middle; the projecting clypeus is more strongly punctured; over its top is a curved furrow. Mandibles testaceous; the teeth black; the palpi white. Mesonotum opaque, strongly aciculated; the parapsidal furrows transversely striated; in the middle of the central lobe is a shallow, punctured, longitudinal furrow. Scutellar depression large, deep, closely punctured, keeled down the middle. Scutellum closely punctured; the post-scutellum depressed, bordered by distinct keels laterally. The base of the median segment is smooth; down its middle runs a straight keel; on the sides, inside the spiracles, is a curved keel, the curve being towards the centre; in the middle, joined to the

central basal keel, is an area, slightly more than twice as long as broad; somewhat triangular in shape and wider at the base; the lateral keels curve inwards; inside, it is closely, transversely striated; at the end of this area is a shorter, almost square one; and outside it is a larger, wider one, which is narrowed on the outer apical half, the keel bounding this part being curved; inside it in the middle are two transverse keels, on the upper outer side are two keels, one straight, the other curved. There are thus four basal, two central and four apical areæ, or 10 areæ in all. Propleuræ finely striated above; the lower part more strongly striated, all the striæ being distinct; the mesopleuræ smooth and shining; the metapleuræ finely rugose. Mesosternum smooth; the central furrow striated. The coxæ black; the anterior obscure testaceous in front; the trochanters white; the femora black; the anterior more or less testaceous; the tibiæ are broadly white at the base; the tarsi rufo-testaceous. Wings hyaline, strongly iridescent; the tegulæ white; the nervures are dark fuscous; the stigma is pale at the base. Abdomen smooth, shining, impunctate, except the raised central part of the petiole, which is distinctly longitudinally striated.

#### *AGATHIDES.*

##### *DISOPHRYS ERYTHROCEPHALA, sp. nov.*

*Nigra; capite, prothorace, mesothorace pedibusque anterioribus rufis; alis violaceo-fumatis. ♂.*

Long. 10 mm.

Antennæ black; the scape thickly covered with white hair. Front and vertex smooth, shining, impunctate; a stout keel runs from the hinder ocelli to the outer side

of the antennæ; the antennal keels are stout; looked at from the front their lower part is triangular. Face and clypeus thickly covered with longish fuscous hair; the clypeus broadly and roundly keeled in the middle; its apex obliquely and roundly depressed; the depression margined above and below; the tops of the mandibles blackish. Prothorax smooth and shining, the upper part of the pronotum stoutly margined; mesonotum smooth and shining, covered with long fuscous hair; the depression at the apex of the central lobe is large, and has at the base two stout keels which are curved backwards in the middle. Median segment depressed at the base; in the middle is a large area wider than long, depressed at the apex, where the bounding keels are stouter; there is a similar, but smaller, area at the apex. The apex of the propleuræ, the curved depression on the mesopleuræ, and the apex of the latter are stoutly striolated; the lower part of the metapleuræ irregularly, stoutly, longitudinally reticulated. Mesosternum thickly covered with fuscous hair; the furrow is wide, crenulated; its apex is black, wider, and has two longitudinal keels, united by a transverse one. Wings uniformly dark, smoky violaceous, with black stigma and nervures; the branch on the second transverse cubital nervure is short and is placed above the middle. Abdomen smooth and shining, the base of the petiole depressed. The anterior legs are entirely rufous-fulvous; the middle pair rufous-fulvous, with the coxæ and trochanters black.

This species comes near to *D. ruficollis* Cam. (*Manchester Memoirs*, vol. xliii. p. 98), but that species may be known from it by the mesonotum only being rufous, not the entire mesothorax, and by the wings being yellowish hyaline.

DISOPHRYS (?) OPHIPPIUM, sp. nov.

*Nigra; prothorace, mesonoto, scutello, mesopleurisque supra rufis; alis fumatis, stigmate nervisque nigris; pedibus nigris, tarsis anterioribus albis; tibiis antecis testaceis.* ♂.

Long. 8 mm.

Antennæ black; the scape covered with white hair; the flagellum thickly with black pubescence. Head smooth and shining; the face and clypeus thickly covered with white hair; the clypeal foveæ deep; the depression below the antennæ deep, triangular; the two antennal keels stout, laterally oblique. Mandibles and palpi black, thickly covered with white hair. Middle lobe of the mesonotum finely punctured; a distinct keel down the middle of the basal half; the furrows are obscurely crenulated. Scutellar depression deep, smooth; a distinct, sharp keel down its centre; its centre at the base is raised and bluntly keeled; the sides and apex above have a raised margin. The base of the median segment is obliquely depressed; the apex of the segment has an oblique slope, and is bordered above by a stout keel; the centre is depressed, the sides raised, the top of the raised part narrowed and rounded; the oblique apex is obliquely striated; the striæ converging towards the middle. The lower part of the propleurae is irregularly obliquely striated; the mesopleurae black, red at the base and broadly above; below thickly covered with white hair; the apex above deeply depressed; behind the middle is an oblique row of stout, irregular striæ. Metapleuræ finely rugose; on the basal half are two stout, widely separated keels; below is a stout angularly curved one; the apex has some stout, oblique keels. Mesosternum closely punctured; the central furrow is stoutly crenulated. Legs thickly covered with white pubescence; the front tibiae and the base of the middle pair testaceous; the four anterior tarsi white. Abdomen smooth and shining; the

centre of the petiole raised; the sides carinate. The transverse cubital nervures converge, but do not touch above; the first is oblique, straight; the second is oblique above and thicker than below.

It is doubtful if this can be regarded as a *Disophrys* inasmuch as the branch on the transverse cubital nervure can hardly be said to exist; in other respects it agrees fairly well with the genus.

### OREBA, *gen. nov.*

Fore wings with three cubital areolets; the first cubital areolet not separated from the praediscoidal; the second transverse cubital nervure emitting a branch from its middle. Face not narrowed to a point; the vertex excavated; a broad keel between the antennæ; the face projecting broadly in the middle. Mandibles with a minute subapical tooth. Mesonotum distinctly trilobate; mesopleuræ with a wide striolated furrow. Metanotum irregularly reticulated; its sides at the apex largely triangularly produced. Legs stout, the claws sub-bifid. Abdomen sessile; the second dorsal segment with a broad transverse furrow.

Head narrower than the thorax; eyes prominent, parallel, not reaching to the clypeal foveæ; face broadly carinate, not separated from the clypeus by a suture; the hollowed part of the front is bordered by a distinct stout keel; the ocellar region is raised; the occiput is not margined. The thorax is largely developed in front of the tegulæ; the propleuræ are deeply excavated on the lower part; the mesosternum broadly excavated. There is a large, clearly defined area in the middle of the median segment, which is triangular at the base. Scutellum roundly raised; the depression at its base deep. Antennæ short, thick; the flagellum pilose, tapering towards the apex.

Legs stout; the tibiæ and tarsi covered densely with short thick hair; the outer fork of the claws is long and curved; the basal one shorter and thicker.

Comes nearest to *Microdus*; may be known from it by the square second cubital cellule; by the second transverse cubital nervure emitting a short thick branch; and by the mesonotum being more distinctly and deeply trilobate. The transverse probrachial nervure is interstitial; the recurrent nervure is received shortly in front of the first transverse cubital.

✓ OREBA PURPUREA, sp. nov.

*Purpurea, facie coerulea; antennis tarsisque nigris; alis fusco-violaceis.* ♀.

Long. 13 mm.

Antennæ not much longer than the head and thorax; distinctly tapering towards the apex, thickly covered with stiff black pubescence. Face and clypeus indigo-blue, spotted at the sides and top with black; the face carinate; the sides of the keel broad, oblique; the sides and upper part thickly covered with short white pubescence; the clypeal foveæ large, deep. Mandibles black, shining. Thorax bright purple, shining; the pleuræ and metanotum sparsely covered with white hair; the mesonotum punctured, but not closely; its base transverse, rounded laterally; the middle lobe is large, its apex triangular, obliquely depressed; the sides of the lateral lobes at the apex have also an oblique slope; there are two straight furrows in the centre of the middle lobe which reach to the base of the apical slope. Scutellum roundly convex; sparsely punctured; the basal depression large, smooth, and bearing three longitudinal keels; the post-scutellum closely punctured. The base of the metanotum depressed; in the middle is a distinctly defined area, slightly wider

than long, and raised in the middle at the apex; the rest is irregularly rugose, except for a large area in the centre, which is triangular or lanceolate at the base, and is marked with three transverse keels; the spiracular area is bounded on the inner side by a stout, curved keel. Propleuræ closely punctured; the upper part triangularly raised in the middle; the lower part in the centre deeply depressed and marked with some keels. Mesopleuræ closely punctured; the lower depression deep, wide, striated throughout. Mesosternum closely punctured; the central furrow bearing stout, transverse keels. The upper half of the metapleuræ closely punctured; the lower irregularly, closely, obliquely rugose. Wings dark, smoky violaceous; the nervures black; there is a hyaline mark in the first cubital cellule, and one outside and below the recurrent nervure. The tibiæ and tarsi are thickly pilose; the hinder coxæ closely punctured. Abdomen smooth, shining, glabrous.

### ICHNEUMONIDÆ.

#### PIMPLIDES.

##### HABROPIMPLA, *gen. nov.*

Arolet oblique, the transverse cubital nervures uniting at the top or shortly appendiculated; the basal abscissa of the radius distinctly curved upwards at the base. Head broader than long; the clypeus separated from the face, obliquely depressed at the apex. Mandibles with two equal teeth at the apex. Mesonotum shining, the parapsidal furrows obsolete. Scutellum rather flat, longer than broad, slightly narrowed towards the apex. Metanotum smooth; the middle stoutly transversely striolated; the sides at the apex stoutly keeled; the spiracles large, linear, of equal width, rounded at the ends and placed shortly behind the middle. Legs stout, formed as in

*Pimpla*. Abdomen smooth, shining, almost impunctate; the petiole depressed at the base above; tuberculate behind the middle, where the spiracles are; the second, third, and fourth segments with oblique depressions at the sides. The eyes are slightly contracted on the inner side above and margined.

This genus comes near to *Chrysopimpla*, not only in the presence of the yellowish colour, but in the form of the areolet and in the curved apex of the radius: but differs from it in the face not being so elongated; in the much shorter clypeus, which is obliquely depressed at the apex; in the eyes being more distant from the base of the mandibles; in the spiracles being placed more behind the middle of the petiole; in the hinder tarsi being more slender and longer compared with the tibiæ; and in there being no cloud at the apex of the fore wings.

HABROPIMPLA BILINEATA, sp. nov.

*Nigra; scapo antennarum, scutello, lineis 2 metanoti pedibusque stramineis; alis fulvo-hyalinis, nervis stigmateque nigris.* ♂.

Long. 14 mm.

Scape of the antennæ yellow, black above, punctured; the apex with pale hairs; the flagellum thickly covered with short stiff hairs; the basal part brownish beneath; the apical joints slightly dilated at the apices. Head black, except for a yellow mark at the sides near the clypeus; the clypeus and labrum brownish (perhaps a discoloured yellow), the centre of the clypeus broadly black. Mandibles black; the palpi rufous-yellow, covered with white hairs. Face rugosely punctured, the centre indistinctly keeled; the clypeus smooth

and impunctate ; the front and vertex smooth ; the ocelli bordered by furrows. Thorax black ; the tegulae, tubercles, a line on the apical part of the pronotum, narrowed in the middle, broadly dilated at the apex, the scutellum, a line on the sides of the median segment, narrowed at the base, the apex broadly dilated on the inner side before the apex, lemon-yellow. Mesonotum smooth, shining, thickly covered with fuscous pubescence. Scutellum smooth, sparsely covered with long fuscous hair, post-scutellum impunctate, covered thickly with long fuscous hair, separated from the scutellum by a narrow deep depression ; the depression at its sides wide, shallow, smooth. Median segment without areæ or keels ; the base depressed in the middle ; the middle at the base smooth, at the sides obscurely roughened ; the middle part stoutly transversely striolated ; the apex smooth, impunctate. Pro- and meso-pleuræ smooth, impunctate ; the apices of both crenulated ; the metapleuræ above and at the apex closely and finely striated. The four front legs are entirely stramineous yellow ; the hinder coxae black ; broadly yellow in the middle above ; the trochanters yellow, piceous at the apex ; the femora black, yellow above ; the tibiæ yellow, narrowly black at the base, more broadly at the apex, and the hinder tarsi entirely black. Abdomen black ; the sides of the basal three segments broadly, their apices narrowly, the fourth with the sides at the apex, and the apex itself narrowly, and the fifth with the apex at the sides, lemon-yellow ; the 2nd—4th abdominal segments yellow. The basal three segments shallowly punctured ; the gastrocoeli oblique, narrow, smooth, extending shortly beyond the spiracles ; on the base of the third segment is a broad, shallow, oblique depression. The quantity of black on the legs varies, especially on the femora.

CÆNOPIPLA, gen. nov.

Second transverse cubital nervure obsolete, the first short, the cubital nervure in front of it with a sharp, oblique slope; the basal and apical abscissæ of the radius oblique; the transverse basal nervure interstitial; stigma large. Clypeus not separated from the face by a suture. Mandibles with one longish, sharp, apical tooth. Parapsidal furrows distinct, deep. Scutellum slightly raised, narrowed towards the apex; its sides keeled. Median segment completely and distinctly areolated; the supramedian area longer than broad, its sides oblique at the base; the spiracles are small, circular. Legs normal; the claws simple; the fore tarsi incised at the base. The petiole is broadly raised, the raised part keeled laterally; the upper and lower outer sides are also keeled; the spiracles are placed shortly behind the middle; the second, third, and fourth segments are longitudinally striated, with broad, transverse depressions.

A distinct and somewhat isolated genus. It is easily known by the absence of an areolet, by the parapsidal furrows and by the areolated metathorax. Its general coloration, form and spotted wings, give it the appearance of a *Hemiteles*.

CÆNOPIPLA RUFICOLLIS, sp. nov.

*Nigra; prothorace, mesonoto, scutello mesopleurisque supra rufis; alis hyalinis, fusco-bifasciatis, stigmate fusco; pedibus anterioribus pallide testaceis, posticis nigris, basi tibiarum albo.* ♂

Long. 5 mm.

Antennæ black; the basal two or three joints dark brownish; the joints thickly covered with short, stiff, black hair. Face and clypeus closely rugosely punctured,

and covered with short white hair; the apex of the clypeus rounded, depressed, margined. Base of mandibles black; the middle yellowish, the apex piceous; palpi long, pallid yellow. Thorax rufous; the sterna, the lower part of the mesopleuræ and the whole of the metathorax, black. Mesonotum closely punctured; the middle lobe finely transversely striated; the central lobe is distinctly separated. Scutellum rugosely punctured, narrowed towards the apex. Median segment with all the areæ clearly defined and punctured; the supra median is longer than broad; the base transverse in the middle; the sides oblique; the apex transverse. Pro- and meso-pleuræ closely punctured, striated in the middle; the apex of the mesopleuræ smooth above; the metapleuræ strongly rugose. Wings hyaline; there is a cloud extending from near the top of the transverse basal nervure (broadest on the inner side) to the opposite side of the wing, and a broader one extending right across from near the base of the stigma to the base of the apical third of the radial cellule. The four anterior legs are pale testaceous; the coxæ black at the base; the hinder legs black; the trochanters and base of tibiae white. Abdomen black; the apices of the first and second segments testaceous; the petiole is almost impunctate above; the middle keels do not extend to the apex; the sides are bordered above and below by keels, and are finely punctured; the second, third, and fourth segments are longitudinally striated, the striae becoming gradually finer and closer; the transverse depression on the fourth segment is broader and more curved than that on the third; the depression on the fifth is broad, curved, and separated by a longitudinal keel in the middle; the apical segments are densely covered with white hair.

BANCHI.

BALIENA, *gen. nov.*

Areolet small, oblique, the transverse cubital nervures touching above; the lower side angled; the apical abscissa of the radius is curved upwards. Eyes larger than usual; distinctly converging beneath, reaching close to the base of the mandibles. Clypeus small, twice as broad as long; its apex semicircularly depressed. Mandibles broad at the base, narrowed at the apex, which has one tooth. Face roundly convex, reaching near to the lower side of the eyes. Occiput immarginate. Mesonotum trilobate; the middle lobe triangular at the apex. Scutellum large, flat. Median segment elongate, nearly as long as the mesothorax; it has a gradual slope to the apex, has the small, somewhat oval, spiracles in the middle, has no keels, and is closely, but not strongly, reticulated. Legs long, slender; the hinder coxae large, as long as the petiole, which becomes gradually wider towards the apex; the spiracles on the petiole are circular and are situated shortly before the middle; the apex of the petiole is not curved. Claws bifid. Ovipositor longer than the abdomen, and issuing from a ventral cleft.

The abscissa of the radius is curved upwards at the base; the transverse basal nervure is interstitial; the recurrent nervure is received at the base of the apical third; the second transverse cubital nervure is faint; the recurrent nervure is largely bullated in the middle; the sub-discoidal nervure issues from the middle.

Comes near to *Banchus* and *Exetastes*; the former may be known from it by the pectinated claws: the latter by the different form of the face and clypeus; by the metathoracic spiracles being placed behind the middle; and by the shorter legs.

BALIENA LEPTOPUS, *sp. nov.*

*Nigra; pedibus fulvis, coxis nigris, tibiis posticis albis, medio late nigris, apice nigris; alis hyalinis, nervis stigmateque nigris.* ♀.

Long. 14; terebra 12 mm.

Antennæ black; the middle broadly clear white; the scape brownish beneath, shining, almost bare. Head black, shining; the face and the lower part of the front yellowish-white, impunctate; the vertex and face sparsely covered with long, pale fuscous hair, and the face also with white pubescence; the apex of the clypeus brownish; the mandibles entirely black, shining; the palpi yellow. The pro- and meso-thorax plumbeous black; the tegulæ, tubercles, scutellum, post-scutellum, and the hinder edge of the mesopleuræ above, yellow; the mesonotum somewhat strongly punctured; the apex of the middle lobe and the inner sides of the lateral transversely striated. Scutellum black and wrinkled at the base; the rest of it with shallow punctures; the post-scutellum impunctate, shining; the depressions at the sides of the scutella smooth; the sides of the scutellum obscurely, longitudinally striated. Median segment opaque; the middle strongly reticulated, more closely at the sides and apex than at the base; the segment has a gradually oblique slope. Pro- and meso-pleuræ smooth and shining; the pro- almost bare, the meso- and meta-pleuræ thickly covered with long grey hair; the meta-pleuræ strongly and closely reticulated; the lower separated from the upper part by a narrow, but distinct, curved keel; shortly beyond the middle, touching it on its lower side, is a large, deep, smooth fovea. The four front legs fulvous, the tibiæ of a paler, more yellowish tint, their coxæ black, white in front; the hinder coxæ black;

their sides, inside and out, broadly pale yellow ; the basal joint of the hinder trochanters yellow, the apical black ; the apex of the hinder femora and the middle of the hinder tibiæ black ; the yellow on the apex of the latter being more extended than it is at the base, the apex of the tarsi black. Wings hyaline; the stigma and nervures black ; the areolet small ; the transverse cubital nervures uniting at the top ; the recurrent nervure received in the apical third ; the transverse median nervure is interstitial. Abdomen shining, impunctate ; the base of the petiole broadly, the apex more narrowly, and the apices of all the other segments, yellow, as is also the ventral surface, except the apex of the petiole, which is black.

### TRYPHONIDES.

#### MESOLEPTUS ANNULIPES, sp. nov.

*Niger, flavo-maculatus ; antennis pedibusque rufis, coxis trochanteribusque anterioribus flavis, tibiis tarsisque posticis fusco-nigris, basi albis ; alis hyalinis.* ♂.

Long. 8 mm.

Antennæ slender, not tapering towards the apex ; covered with a microscopic pubescence ; the scape and base of the flagellum blackish above ; the third joint is nearly twice the length of the fourth. Head black, shining ; the face, clypeus, mandibles, palpi, and inner orbits in front to nearly opposite the hinder ocelli, yellow ; the front and vertex impunctate ; the face and clypeus rather strongly, but not closely, punctured ; the middle of the face roundly projecting ; the mandibular teeth subequal, black. Thorax black, a triangular mark on either side of the base of the mesonotum—the narrow end on the outer side, the scutellum, tegulæ, tubercles, a small mark immediately under the hinder wings,

and a somewhat triangular oblique mark in front of the hinder coxae, yellow. Mesonotum distinctly, but not closely, punctured; there are no furrows. Scutellum roundly convex, yellow, black round the edges, more sparsely punctured than the mesonotum. Post-scutellum impunctate, bare, obliquely widened towards the apex; its base distinctly separated from the scutellum. Median segment with a gradually rounded slope, closely, rather strongly and uniformly punctured, and thickly covered with short white hair. Pleurae closely punctured, the base of the propleurae, and the apex of the mesopleurae on the lower half, smooth and impunctate. Mesosternum closely punctured, the central furrow shallow. The four front legs are pale rufous; the coxae and trochanters are pallid yellow; the hinder coxae, trochanters and femora, bright rufous; the tibiae fuscous, darker above, white at the base; the tarsi black, the metatarsus white to near the middle. Wings short, as long as the abdomen; hyaline, slightly smoky at the base; the areolet triangular, the nervures uniting at the top, not appendiculate; the recurrent nervure is received shortly in front of the second transverse cubital, almost interstitial; the transverse median nervure is received shortly in front of the transverse basal. Abdomen smooth and shining; the basal half of the petiole, the base of the second, third and fourth, and the apices of the two apical segments, pale yellow.

The *Tryphonides* are very numerous in the northern parts of the Palaeartic and probably also in the Nearctic zoological regions, but are little known outside them. A large number are known to be parasites on *Tenthredinidae*.

MESOLEPTUS KIASIANUS, *sp. nov.*

*Niger; abdomine rufo, petiolo nigro; pedibus anterioribus*

*flavo-testaceis, posticis rufis; coxis, apice tibiarum posticarum tarsisque posticis nigris; alis hyalinis, nervis stigmateque nigris.* ♂.

Long 12 mm.

Scape of antennæ yellowish rufous, thickly covered with black hair ; the flagellum rufous, darker above, especially towards the apex. Head black ; the face, clypeus, base of the mandibles and palpi, yellow ; the face darker in the centre ; closely and strongly punctured, covered thickly with short fuscous hair ; the clypeus with the hair longer and paler ; its apex smooth, impunctate ; the base with punctures, which are larger, deeper, and more widely separated than those on the face. Mandibles strongly punctured at the base, and thickly covered there with long white hair ; the palpi thickly covered with white pubescence. The thorax black ; thickly covered with short white pubescence ; the tegulae and the base of the scutellum yellow. Mesonotum closely punctured ; the middle at the base slightly raised ; the scutellum with the punctures more widely separated at the base ; the post-scutellum finely punctured, the base forming a semicircular depression ; the sides at the apex are bordered by a distinct keel. The median segment has a gradually rounded slope ; is closely and strongly punctured and covered with long white hair ; there are no areæ ; in the centre at the base are two stout, slightly converging keels ; there is a distinct curved keel outside the spiracles. The four anterior legs are pale fulvous, the coxae and trochanters pallid yellow ; the hinder coxae are black, except at the extreme apex and in the middle beneath ; the trochanters are yellow, tinged with rufous ; the femora and tibiae rufous ; the apex of the tibiae and the tarsi black ; the spurs testaceous. Wings clear hyaline ; the areolet triangular ; the nervures uniting at the top ; the first straight, oblique ; the second curved ;

the recurrent nervure is received in front of the transverse cubital, almost touching it; its upper half is broadly curved, its lower straight, oblique; the curved part is broadly bullated at the top and bottom; the second transverse cubital nervure is largely bullated at the bottom; the transverse median nervure is received in front of the transverse median, not touching it. The petiole becomes gradually dilated from the base to the apex; the base has a semicircular depression, inside of which are a few longitudinal striations; beyond this is a shallow, strongly aciculated depression which becomes gradually narrowed to the apex; the second segment is distinctly furrowed on the basal half at the sides; the gastrocœli rufous, shallow, finely striated.

AITHRIS, *gen. nov.*

Head buccate. Eyes large, not converging below; reaching near to, but still distant from, the base of the mandibles; above, on the inner side, there is a distinct rounded incision. The clypeus not defined from the face; the mandibles have two stout apical teeth. Behind, the head is not much developed and is obliquely narrowed; the occiput immarginate. Scutellum flat; the sides stoutly keeled to shortly beyond the middle; there are two foveæ at the base of the post-scutellum. Metathoracic spiracles large, linear; outside them is a stout, obliquely bent keel. Legs stout, the femora thickened; the calcaria short and thick; the last joint of the hinder tarsi as long as the preceding three joints united; the claws stout, simple; there are two spurs on the hinder tibiæ. Wings without an areolet; the first abscissa of the radial nervure straight, oblique; the second curved upwards at the base; the recurrent nervure is curved and is almost interstitial with the transverse cubital; the transverse median nervure is

received on the outer side of the transverse basal. Petiole as long as the second and third segments united; from the middle it becomes gradually dilated; the small round spiracles are placed shortly beyond the middle; the upper part of the sides are keeled to the spiracles; the lower part keeled to the end; the gastrocœli are obsolete; the segments become gradually wider towards the apex.

The basal two joints of the flagellum are equal in length; the mesopleura bulges out broadly in the middle and is broadly depressed behind; its base has an oblique slope, and is keeled on the top. The antennæ are placed high up on the face, opposite the eye incision; above them, on the lower part of the front, is a distinct projection which is widened above; the top deeply depressed in the middle; the labrum is not exserted. Metanotum not areolated. Ocelli large, placed in a triangle. Abdomen smooth and shining, the second to fourth segments equal in length. The basal joint of the anterior tarsi is incised at the base; the apical joint is as long as the basal; the middle ones short and thick; the calcaria stout, reaching to the middle of the metatarsus.

Belongs to the *Tryphonides* and comes near to *Exochus*, but is abundantly distinct from anything described.

AITHRIS CENUTUS. sp. nov.

*cornutus*

*Niger; antennis rufo-testaceis, femoribus, tibiis tarsisque anticus, basique tibiarum posteriorum, dimidio apicali segmenti abdominis secundi segmentoque 3-o flavis; alis hyalinis, stigmate nervisque fuscis.* ♂.

Long. 7 mm.

Antennæ as long as the body, rather stout, not tapering much towards the apex; thickly covered with short pale hair. Head black; the apex of the clypeus, and

the mandibles broadly at the base, rufo-testaceous; the palpi yellow; the face strongly punctured; the punctures large, deep, and clearly separated; the front and vertex smooth and shining, sparsely and shortly haired; the face rather thickly covered with long pale hair. Thorax black, smooth and shining; the tegulae, scutellum and post-scutellum, lemon-yellow; the pleuræ and metanotum thickly covered with long pale hair; the propleuræ crenulated at the apex; the mesopleuræ finely punctured; the apical half of the mesopleuræ largely excavated. Mesosternum thickly covered with long fuscous hair; its middle depressed. On the metapleuræ, enclosing the spiracles, are two curved longitudinal keels, which converge towards the apex; the distance between them at the base being greater than at the apical half. Legs black; the anterior legs, except at the base and for a large mark on the femora behind, the middle knees, basal half of tibiæ and tarsi, and the basal two-thirds of the hinder tibiæ, lemon-yellow; the hinder tarsi fuscous. Wings hyaline; the stigma and nervures fuscous. Abdomen smooth and shining, deep black; the apex of the petiole, and the second segment entirely, lemon-yellow.

TILGIDA, *gen. nov.*

Fore wings without an areolet, the only transverse cubital nervure very short, so that the cubital and the radial nervures approach each other very closely; the recurrent nervure is received about four times its length from it; the transverse median is received shortly behind the transverse basal. Eyes very large, their inner orbits straight and converging slightly, but distinctly, on the lower side; the orbits are very little developed behind, and are roughly striated above. Clypeus small, its apex transverse; the labrum is longer than it. Mandibles

somewhat triangular at the base, curved, narrowed towards the apex, and bluntly toothed there. Palpi longish. Antennæ long and slender. The fore lobe of the mesonotum is largely raised and does not reach to the middle of the mesonotum, which is depressed behind it. Scutellum large, only slightly roundly raised. The median segment is elongate, has a gradually rounded slope to the apex and has no keels; its spiracles are oval and are placed beyond the middle, half-way between it and the apex in a hollow. Abdomen long and slender; the petiole long and slender, not curved at the apex, longer than the second segment; its spiracles small, round, and placed shortly beyond the middle; the gastrocceli are small, indistinct. Legs long and slender; the hinder coxæ large; the tarsi spinose; their claws long, curved and thickened at the base; the front tarsi are bent at the base; the fore calcaria curved, pilose.

Unfortunately I have only a ♂ of this genus. In the form of the abdomen it does not differ much from *Mesoleptus*, but in other respects it differs completely from that and from any known genus of the *Tryphonides*. It is undoubtedly nearly related to *Baliena*, as is shown by their agreement in the form of the head, thorax, and legs, but differs in the fore wings wanting the areolet.

TILGIDA ALBITARSIS, *sp. nov.*

*Nigra; facie, annulo flagelli antennarum late, scutello, post-scutello, apice metanoti basique pronoti flavis; pedibus flavis, coxis femoribusque posticis fulvis; dimidio apicali tibiarum posticarum nigris; alis hyalinis.* ♂.

Long. 12 mm.

Antennæ black; the scape and the 13th—25th joints of the flagellum white; the basal joints of the flagellum yellowish beneath. Head black; the face yellow, smooth,

covered sparsely with white hair; the base of the clypeus black, the depressed apex brownish; the hairs on the clypeus are longer than those on the face. Mandibles black; the palpi yellow. Mesonotum closely and strongly punctured; the depressed apex obscurely striated. Scutellum covered with large shallow punctures, and sparsely with white hair; the post-scutellum smooth. Median segment closely, and rather strongly, transversely striated, broadly furrowed down the middle of the black part; the yellow apex is finely transversely striated. Propleuræ shining; the base broadly yellow above, more narrowly below. Mesopleuræ obscurely punctured, finely longitudinally striated above at the tubercles, and below in front of the coxæ. Metapleuræ closely obliquely striated, punctured at the base. Mesosternum punctured, covered thickly with fuscous hair, and with a shallow furrow down the middle. The four anterior legs yellow, their tarsi blackish; the hinder coxæ and femora fulvous, the coxæ black at the apex above; the apical joint of the trochanters broadly black above; the apex of the femora, almost the apical half of the tibiæ, and the two apical joints of the tarsi, black. The cubital nervure approaches close to the radial, being united to it near the middle by a short thick branch; the recurrent nervure is received at four times the length of this branch from it. Abdomen black; all the segments broadly yellow at the apex; the petiole rough, smooth at the base, the middle depressed; the gastrocœli pale yellow, distinct, deep; the four apical segments are thickly covered with white hair.

ARTHULA, *gen. nov.*

Antennæ stout, not tapering much towards the apex, 29-jointed. Head not much developed behind the eyes, which are large, parallel, and do not reach to the base of

the mandibles. Clypeus small, separated by a suture from the face, its apex obliquely depressed transversely; the labrum prominent, rounded. Mandibles stout, short, ending in two subequal teeth. Parapsidal furrows distinct. Scutellum large, roundly convex. Median segment with one transverse keel near the base; its spiracles moderately large, linear, rounded at the base and apex. Wings without an areolet, there being only one transverse cubital nervure; the cubital and radial nervures almost united, the transverse cubital nervures being very short; the recurrent nervure is interstitial, as is also the transverse median; the discoidal nervure is obliquely curved on the basal half. Legs elongate, especially the hinder pair, which have the coxae large; the basal joint of their trochanters more than twice the length of the apical; the tarsi spinose; the metatarsus as long as the other joints united; the intermediate and hinder tibiæ with two spurs. Petiole curved; gradually, but not greatly, dilated towards the apex; the spiracles placed shortly beyond the middle, the second segment triangular, narrow at the base, becoming gradually wider towards the apex, which is transverse; the gastrocoeli indistinct; the third and following segments are wider than long; the third, fourth and fifth segments have large depressions on the sides, their middle roundly raised, the hypopygium large, triangular at the apex, flat; the cerci short, stout, pilose.

The short thick antennæ with comparatively few joints, and the similarity in the alar neuration, might place it near *Acoenites*. In the absence of the ♀, its exact relationship cannot be very clearly defined.

It comes nearest to the *Tryphonides* and is closely related to *Chreusa*, *Hemigaster* and *Macrogaster*, with which it agrees in the neuration of the wings and in the paucity of joints in the antennæ, but may be known from

all of them by the median segment having only one transverse keel, and consequently no areae; by the metatarsus being longer than all the other joints united; and by the more slender petiole. As, owing to the similarity of the alar neuration, these little-known genera are apt to be confounded, it may be advisable to give a synoptical table of their differences.

A. Middle lobe of the mesonotum triangular, transverse at the base; the legs short, stout, the fore claws bifid.

Colour black; the median segment areolated all over, the spiracles placed behind the middle of the petiole. *Macrogaster.*

Colour luteous, the median segment not areolated all over; the spiracles placed in the middle of the petiole. *Chreusa.*

B. Middle lobe of the mesonotum not triangular, rounded at the base; the legs long and slender; the fore claws simple.

Median segment areolated, the post-petiole distinctly dilated; the metatarsus not longer than the other joints united. *Hemigaster.*

Median segment not areolated, the post-petiole not dilated; the metatarsus longer than all the other joints united. *Arthula.*

#### ARTHULA BRUNNEOCORNIS, *sp. nov.*

*Nigra; capite thoraceque flavo-maculatis, pedibus nigris, flavo-maculatis; abdomine ferrugineo; alis hyalinis, stigmate fusco.* ♀.

Long. 11—12 mm.

Antennæ as long as the abdomen, stout, scarcely tapering towards the apex, dark brownish, darker above; the scape bright lemon-yellow. Head black; the face, clypeus, labrum, and the orbits all round, lemon-yellow; the base of the clypeus, an oblique mark on either side of

its base, and the mandibles, except before the apex, black. The face is flat, and closely punctured ; the basal part of the clypeus projects slightly and roundly ; its apex is obliquely depressed; the front and vertex closely punctured; the former with a broad longitudinal furrow. Thorax black ; a broad band on the pronotum, the tegulae, a mark on the base of the parapsidal furrows, the apical half of the scutellum—the mark narrowed in the middle at the base and apex—, the scutellar keels, post-scutellum, the space at their sides, a large mark on the apex of the median segment, narrow at the base, becoming gradually wider towards the apex, which is obliquely narrowed, the lower part of the propleuræ, the tubercles, a perpendicular mark on the base of the mesopleuræ, narrow above, becoming wider below, an irregular mark under the hind wing, a larger, more irregular, mark on the lower side near the apex, incised in the middle below, and a large mark on the mesosternum, divided in two by the furrow and narrowed at the base, lemon-yellow. Mesonotum opaque, closely punctured ; the parapsidal furrows reaching to the middle ; the scutellum somewhat more strongly, but not so closely, punctured ; the furrow at its base smooth and shining. The base of the median segment finely and closely punctured behind the only transverse keel ; the rest of it much more strongly punctured and striated at the base. Pleuræ closely punctured ; the middle of the propleuræ strongly irregularly striated. The mesosternum closely punctured ; its furrow narrow, crenulated. The four front legs are pale fulvous, yellowish at the base, the coxae black at the base ; the hinder legs are of a darker fulvous ; the coxae and tarsi yellower ; the coxae largely black on the inner and outer side, the former with the black mark at the base, the latter with it at the apex ;

the trochanters are largely black above; the femora marked with black above at the base. Wings clear hyaline, the stigma fuscous, the nervures darker. Abdomen dark ferruginous; the petiole in the middle, and the bases of the segments, black.

*With the Author's respects*

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# Hymenoptera Orientalia, or Contributions to the Knowledge of the Hymenoptera of the Oriental Zoological Region. Part IX.

## The Hymenoptera of the Khasia Hills. Part II. Section 2.

BY

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XIV. Hymenoptera Orientalia, or Contributions to the Knowledge of the Hymenoptera of the Oriental Zoological Region. Part IX.

The Hymenoptera of the Khasia Hills. Part II.  
Section 2.

By P. CAMERON.

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CRYPTINA.

SILSILA, gen. nov.

Areolet small, narrow, twice longer than broad ; the transverse cubital nervures are faint ; the recurrent nervure is received in the middle ; the transverse median nervure is received shortly behind the transverse basal. Eyes large, parallel, reaching near to the base of the mandibles. Clypeus roundly convex, its apex transverse in the middle. Mandibles with two large apical teeth. Parapsidal furrows deep ; the base of the thorax transverse ; its sides tuberculate. Metathorax longish ; the metanotum with a gradually rounded slope ; closely punctured throughout ; there is only one transverse keel ; its spiracles about three times longer than broad, rounded at the base and apex. Legs normal ; the hinder tarsi spinose. Petiole not much longer than the second segment, becoming gradually wider (but not much) towards the apex ; the spiracles are placed at the base of the apical third ; its curve is not very distinct ; the gastrocœli are shallow, triangularly narrowed at the base ; the apical segment obliquely

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narrowed from the apex to the base; the ovipositor projecting obliquely upwards.

This genus has the alar neuration of *Ceratocryptus* and agrees with it in some other respects, but may be separated from it by the front not being depressed and wanting the tubercles; and by the median segment having a gradual, not an abrupt, oblique slope on the apex. It comes also near to *Gotra*; but that genus has not the mesonotum so deeply trilobate and is opaque, not smooth and shining; the pronotum is rounded, not projecting into tubercles laterally at the base.

✓ *SILSILA FULVIPES, sp. nov.*



*Nigra; albo-maculata; facie, annulo late antennarum, medio apiceque metanoti, flavis; pedibus fulvis, coxis trochanteribusque flavis; alis hyalinis, stigmate nigro.* ♀.

Long. 11; terebra sere 3 mm.

Antennæ thickened towards the apex, black, brownish at the apex, the eighth to the sixteenth joints white. Face, clypeus, and mandibles, whitish-yellow; the face and clypeus broadly, distinctly and roundly dilated in the middle; the rounded centre of the face strongly punctured, the sides with only a few punctures; the clypeus only very obscurely punctured, roundly projecting in the middle; at the top in the middle not separated from the face, but the sides bordered by a narrow, but deep, furrow. The mandibular teeth are black; the palpi pallid yellow. Thorax black, a broad line in the centre of the pronotum, the scutellum and post-scutellum, the middle of the median segment broadly and the apical fourth still more broadly, yellow; on the base of the propleuræ there is a broad line, the tegulæ, a small oblique mark under them, a larger one on the lower side of the mesopleuræ at the apex (broad at the base, gradually

triangularly narrowed to the apex), a line on the top of the metapleuræ at the base and a large mark on the top near the apex (transverse above, roundly narrowed below), yellow. Parapsidal furrows distinct, the middle lobe distinctly raised above and separated from the lateral ; the three lobes bearing rather deep, distinctly separated punctures ; the sides smooth ; the scutellum and post-scutellum smooth. Median segment closely and strongly punctured ; the punctures behind the keel more widely separated, the apex in the middle transversely striated ; there are no teeth ; the yellow part is distinctly bordered, especially the apical part, and the segment is covered with long fuscous hair. Pro- and mesopleuræ strongly punctured, except the former at the base and the latter at the apex ; metapleuræ, if anything, more strongly punctured, except on the yellow part at the base above. Mesosternum closely punctured ; the furrow becomes much and triangularly widened at the apex. The four anterior legs are pale fulvous, the coxæ and trochanters pallid-yellow ; the hinder pair are of a deeper fulvous ; the coxæ are black, yellow in the middle behind ; the apical joint of the trochanters and the knees black ; the apex of the tarsi and of the tibiæ fuscous. Wings hyaline, iridescent ; the space between the base of the stigma and the transverse basal nervure, pale ; the areolet very narrow, the transverse cubital nervures pale in the middle ; the recurrent nervure is received almost in the centre of the areolet ; the transverse basal nervure is interstitial. Abdomen black ; the base of the petiole broadly, its apex more narrowly, the base of the second segment, its apex more narrowly and the apices of the other segments, yellow ; the petiole is smooth and shining, tuberculated at the base of the dilated part, its middle with an oval fovea. The second and following segments are closely

and minutely punctured ; the gastrocceli long, narrow, shallow, and wider at the base.

SILSILA BILINEATA, *sp. nov.* ♂

*Nigra ; flavo-maculata ; pedibus fulvis ; coxis trochanteribusque anterioribus flavis, coxis trochanteribusque posticis, apicibus femorum tibiarumque nigris ; alis hyalinis, stigmate nervisque nigris.* ♂.

Long. 13 mm.

Antennæ longer than the body ; black, thickly covered with short stiff black pubescence ; the seventh to sixteenth joints clear white. Head smooth and shining, the face covered sparsely with short, white pubescence ; the face, clypeus (except at the apex), the mandibles, palpi, inner orbits narrowly above, and the lower half of the outer more broadly, lemon-yellow ; the ocellar region is raised ; the front bluntly keeled. Thorax black, shining ; the projecting middle of the pronotum, the scutellar keels, the scutellum (except at the apex), the post-scutellum and its lateral keels, a large mark, rounded at the base, incised on the inner side at the apex, a large mark on either side of the apex of the median segment, produced into a narrowed point on the inner side at the top and bottom, the tubercles, a large mark on the base of the mesopleurae next the sternum, narrowed roundly above towards the apex, and a curved mark on the sides of the mesosternum, lemon-yellow. Mesonotum smooth and shining ; the middle lobe is distinctly raised and separated from the lateral ; its apex is bordered on the depression by six short, stout, keels. The depression at the sides of the post-scutellum is stoutly keeled, the median segment is smooth at the base ; the rest stoutly and closely transversely striated. The propleurae stoutly longitudinally striated ; the mesopleurae more closely striated at the base

above, the striations being continued as a narrower band round the yellow mark; the metapleuræ stoutly punctured, the punctures round and deep; above and near the apex they run into striations; the mesosternum is smooth and shining; its furrow wide and crenulated. The wings have a slight fuscous tinge; the transverse median nervure is received distinctly behind the transverse basal; the four anterior tarsi are infuscated; the hinder coxæ are black, yellow at the apex, and, at the base above, there is a yellow trilobate mark; the outer lobe being the longer; the hinder trochanters, the apices of the femora and of the tibiæ, the base of the tarsi narrowly and the apical half of the end joint, black. The abdomen smooth and shining, black; the petiole, except for a black band before the apex, and the apices of the other segments, lemon-yellow.

This is a larger species than *S. fulvipes*, from which it may be further known by the median segment having two yellow marks, not one, and by the hinder trochanters, the apices of the femora and tibiæ being broadly black.

CERATOCRYPTUS, *gen. nov.*

Allied to *Mesostenus*, but may be known from it by the front having two short conical spines, as in the Neotropical genus *Polyænius*. From my genus *Suvalta*, it may be known by the much longer and more slender petiole which is, further, not so widely and distinctly dilated at the apex; also by the mesonotum being distinctly trilobate.

Antennæ annulated with white, stouter than in *Mesostenus*, and slightly thickened and compressed beyond the middle. Clypeus separated from the face. Front with two short, distinct, conical teeth placed side

by side near the middle. Head not developed behind the eyes. Mandibles bidentate. Mesonotum trilobate, the sutures deep. Scutellum large, convex. Metathorax nearly as long as the pro- and mesothorax united; the apex with an oblique slope; before the middle is a transverse keel; its spiracles large, linear, rounded at the base and apex. Legs longish, slender; the tarsi spinose; the claws simple. Wings reaching to the middle of the abdomen; the areolet smaller, about three times longer than wide, the recurrent nervure is received shortly beyond the middle, the transverse median behind the transverse basal. Petiole long and slender, the apical half distinctly, but not much, dilated; its apex obliquely depressed; it is longer than the second segment, which has an oblique depression on either side at the base; the spiracles are small and round, and are placed between the middle and the apex. The apex of the abdomen is straight up and down as in *Pimpla*, the ovipositor arising from its lower side, received in a vertical groove or cleft, and standing upwards above the dorsum of the abdomen. The ventral surface has a central fold.

The characteristic features of this genus are the front with the two spines, the clypeus distinctly separated from the face, the small, elongated areolet and the long abdomen. The antennæ are stouter and the metathoracic spiracles are longer than in either *Cryptus* or *Mesostenus*.

CERATOCRYPTUS BITUBERCULATUS, *sp. nov.*

*Niger; albo-maculatus; mesonoto laevo; pedibus rufis; coxis trochanteribusque anterioribus albis; coxis posticis nigro-maculatis; abdomine quam thorace duplo longiore; alis fulvo-hyalinis, stigmate nigro.* ♀.

Long. 19 mm.; terebra 11 mm.

Antennæ black; the scape in the middle above, and

a broad band (7-8 joints) shortly beyond the middle, clear white. Face, clypeus, mandibles and palpi, yellowish-white; the front and vertex black, except for a yellow line along the orbits; and the outer orbits, except above, yellow. The face is strongly punctured, broadly rounded in the middle, thickly covered with white hair; the clypeus roundly projecting, smooth. Thorax black; the scutellum broadly at the base, the post-scutellum, the sides of the median segment on the oblique apical part, the base of the pronotum, the tubercles, a mark on the apex of the mesopleuræ, obliquely truncated behind, a large curved mark, obliquely truncated at the apex on the base of the metapleuræ, and a mark immediately under the hinder wings, yellow; the middle lobe of the mesonotum raised, clearly separated from the lateral at the apex and sides, the depression at its apex being large. Scutellum and post-scutellum smooth. The median segment behind the transverse keel is smooth; the rest of it to the apex strongly transversely striated; the striæ finer and closer on the basal region. The pronotum raised, tuberculated at the base on the yellow part; the upper part has some scattered shallow punctures; the middle longitudinally striolated, the base not quite so strongly perpendicularly striated, the rest smooth. On the mesopleuræ, the tubercles, and the middle and the lower part behind are smooth, the rest striated; there is a curved furrow on the lower part next the sternum. The metapleuræ are rugosely punctured, thickly covered with long pale fulvous hair; at the apex before the hinder coxæ is a yellow tubercle-like mark. The mesosternum is obliquely truncated at the base and apex where it is smooth; the central part punctured, with a crenulated furrow; the base keeled. Legs fulvous, the coxæ and trochanters white, the hinder coxæ white, broadly black

on the apex above and more broadly black below ; the hinder trochanters, the apex of the femora, the base of the tibiæ narrowly, the apex somewhat more broadly, the metatarsus broadly at the base, the apex of the fourth joint and the fifth entirely, black ; the rest white ; the tarsi spinose. Wings short compared with the length of the body, being distinctly longer than the head and thorax united (8 as against 11 mm.) ; the areolet small, narrow, longer than broad, of equal width throughout ; the second transverse cubital nervure faint ; the transverse median nervure is received distinctly behind the transverse basal ; the recurrent shortly beyond the middle. Petiole slender, longer than the second segment ; smooth ; the part between the base and middle above and the apex yellow ; the yellow mark on the latter is dilated in the middle at the base ; at the base of the dilated apical part is, in the middle above, a large, deep fovea ; the base of the second segment is shining, shagreened, its base at the sides obliquely depressed ; the rest of it and the third and the fourth segments closely punctured ; the apex of the second, of the third, and the others on the sides at the apices, yellow ; the last is entirely yellow at the apex ; the yellow on the lower sides of the apical segments is more extended.

C

CERATOCRYPTUS TIBIALIS, *sp. nov.*

*Niger ; flavo-maculatus ; pedibus rufis, tibiis posticis fuscis, coxis trochanteribusque anticus flavis ; alis fulvo-hyalinis, nervis stigmatisque nigris.* ♀.

Long. 19 mm.

Apart from the differences in coloration this species may be known from *C. bituberculatus* by having two short, thick keels in the middle of the median segment at the base.

Antennæ stout, black, the ninth to fourteenth joints clear white; the scape sparsely covered with black hair; the flagellum more thickly with short, thick pile. Head black; the inner orbits narrowly, the outer more broadly on the lower portion, a large mark on the upper part of the face, narrowed slightly towards the apex, which is triangularly incised, the clypeus (except a triangular mark in the middle), the mandibles, except the teeth, the labrum and the palpi, pallid yellow. The face smooth, obscurely punctured above, the clypeus smooth; both are sparsely covered with white hair. The front and vertex obscurely shagreened, sparsely covered with blackish hair; the ocellar region raised; in front of it there is a short, blunt keel, which projects at the apex into a curved tooth; on either side of this is a blunt, short tubercle. Thorax black; a broad line on the pronotum, the scutellar keels, a large mark in the middle of the scutellum, rounded at the base, gradually widened towards the apex which is transverse, the post-scutellum, a large mark on the sides of the median segment (sharply narrowed at the apex on the inner side, then becoming gradually narrowed from the broad part to the apex), the tegulæ, tubercles, a large mark, longer than broad, bluntly rounded at the base and apex, a curved mark below the furrow and a small mark above the four hinder coxae, pallid yellow. Mesonotum smooth, impunctate, at the base and apex sparsely covered with long black hair; the scutellar depression deep, stoutly longitudinally striolated; the scutellum and post-scutellum smooth. The base of the median segment behind the transverse keel smooth; in the middle are two stout tubercles, which are longer than broad and which have a distinct lateral slope. The rest stoutly transversely striolated, the upper part of the propleuræ punctured, the middle striolated, finely

above, more coarsely below. Mesopleuræ strongly punctured; the middle and apex coarsely, irregularly striolated, running into reticulations; behind the tubercles is a conical depression. Mesosternum punctured, its central furrow shallow, wide, smooth; the lateral deeper and finely punctured. The areolet is narrow, gradually widened towards the apex; the transverse cubital nervures faint; the recurrent nervure is received close to the apex; the transverse median before the transverse basal. The anterior coxæ and trochanters are more or less yellowish, the anterior tarsi infuscated; the hinder tibiæ blackish, the tarsi white, the basal half of the metatarsus and the apex of the terminal joint black. Abdomen smooth and shining, the apices of the segments banded with yellow.

GOTRA\* CARINIFRONS, *sp. nov.*

♂

Long. 5 mm.; terebra 2 mm. ♀.

Comes near to *G. fulvipes*; but may be known from it by the mesopleuræ having two separate yellow marks, not one large one, by the edge of the pronotum projecting more distinctly, and by the front being keeled in the middle.

Head black; the face, the clypeus, inner orbits, the outer orbits broadly below, the base of the mandibles and the palpi, yellow. Face strongly punctured, covered sparsely with white hair; the clypeus sparsely punctured; its apex and the lateral depressions black. Mandibles black; their base yellow; the middle punctured; palpi yellow. Thorax black; the raised edge of the pronotum, a mark on the apex of the middle lobe of the mesonotum, the scutellum and its keels, the post-scutellum, a band round the apex of the metanotum (the top roundly dilated, the

\* *Gatra*, Cam., Ann. and Mag. Nat. Hist., ser. 7, vol. 9 (1902), p. 206.

sides narrow), the marks on the apex broader and roundly narrowed on the inner side at the apex, the lower edge of the propleuræ, two somewhat conical marks on the lower side of the mesopleuræ, the tubercles, two marks under the hind wings, a large oblique conical mark on the metapleuræ, and the sides of the mesosternum largely, yellow. Mesonotum opaque, strongly and closely punctured. Scutellum and post-scutellum impunctate, shining. Median segment closely and strongly punctured; the basal median area is smooth and shining; the transverse keel is curved backwards and is united to its apex. Propleuræ shining; the base smooth, the rest strongly striated; mesopleuræ closely punctured, except a small space under the hind wings; under the tegulæ closely striated; the metapleuræ more coarsely punctured and longitudinally striated at the base. Mesosternum closely and distinctly punctured; the middle furrow with eight stout transverse keels. Legs fulvous; the front ones paler, more yellowish; the coxæ and trochanters yellow; the hinder coxæ broadly black at the base, laterally and beneath, and with a smaller, irregular mark on the apex above; the hinder trochanters are blackish; the apex of the hinder femora, the base of the hinder tibiae, more narrowly, and their apex more broadly, black; the tarsi yellowish, the apex black. Wings hyaline; the stigma and nervures black. Abdomen black, shining; the apices of all the segments lemon-yellow.

HADROCRYPTUS, *gen. nov.*

Head large, almost transverse behind and in front. Eyes large, parallel, not reaching to the base of the mandibles. In the centre of the face, below the antennæ, is a large, distinct protuberance, separated from the sides by a furrow; it is longer than broad, rounded behind,

and oblique at the apex. Clypeus separated from the face only at the sides, not behind, its apex obliquely depressed; at the sides bounded by a sharp oblique keel, which projects slightly on to the labrum, which is large and rounded at the apex. Mandibles unequally bidentate at the apex. The second joint of the maxillary palpi dilated gradually towards the apex. Mesonotum trilobate, the middle lobe not greatly raised, flat. Scutellum large, flat. Median segment with only one transverse keel; the spiracles linear, rounded at the base and apex; the teeth are large; legs long, especially the hinder, the tarsi spinose, the fourth joint armed with six long spines on either side beneath; the claws long, simple. Arolet large, broader than long, the recurrent nervure is received very shortly beyond the middle; the transverse median nervure in the costal cellule distinctly before the transverse basal. Petiole slender, gradually, but not much, widened towards the apex; the spiracles are received shortly beyond the middle. Gastrocoeli small.

Belongs to the *Cryptides* and comes near to *Ceratocryptus*, but it wants the frontal tubercles. *Ceratocryptus* wants the facial tubercle and the keels on the sides of the clypeus, while its arolet is small as in *Mesostenus*: in the present genus large as in *Cryptus*.

#### HADROCRYPTUS NASUTUS, *sp. nov.*

*Niger; flavo-maculatus; pedibus anterioribus flavis, posticis fulvis; apice metanoti late flavo; alis fulvo-hyalinis.* ♀.

Long. 12 mm.

Head wider than the thorax; black; the face, clypeus, labrum, mandibles and palpi, yellow; the inner orbits to the end of the ocelli and the outer, narrowly above, broadly below, the oblique apex of the clypeus, a mark

under the tubercles (rounded at the base, gradually widened towards the apex), and the apex of the mandibles, black ; the face and clypeus strongly punctured, finely transversely striated below the tubercle ; the black apex of the clypeus and the labrum smooth. Thorax black ; a line on the base of the propleuræ (narrow above, widened below), a line on the sides of the middle lobe of the mesonotum, a transverse one at its apex ; the scutellum (except for a somewhat triangular black mark at its base), the post-scutellum, a large mark on the apex of the median segment, square at the base, widened towards the apex ; the tegulæ, tubercles, a large mark on the lower side of the mesopleuræ, dilated upwards at the apex, and a large oblique mark on the middle of the metapleuræ near the apex, yellow. Mesonotum closely punctured ; the depression at the base of the scutellum deep, the bottom flat, shining, finely longitudinally striated. Scutellum sparsely covered with long, white hair, coarsely, but not closely, punctured ; the post-scutellum smooth. There is a deep, narrow furrow at the base of the median segment, which is smooth in the middle, the rest closely and finely longitudinally striated ; the part behind the transverse keel closely, but not strongly, punctured, smooth at the base ; the rest of the segment rugosely punctured, almost reticulated in parts, the sides transversely striated ; the apex has a distinct keel on the sides below, the keels continued on to the centre obliquely and rounded at the top. Propleuræ smooth, finely punctured above, the middle striated. Mesopleuræ punctured, more strongly at the base behind the keel ; under the tubercles, at their base, are three short, curved keels ; the middle above is striolated ; the furrow on the lower side is deep and extends to the middle ; the part behind it is striated. The base of the metapleuræ smooth, the rest punctured.

Mesosternum closely punctured ; the base broadly depressed, the depression rounded at the apex ; the middle has a crenulated furrow. The areolet is broader than long, and is slightly narrowed above ; the recurrent nervure is received in its middle ; is straight and largely bullated in the middle, as is also the second transverse cubital ; hyaline, iridescent, the costa, stigma and nervures black ; the transverse median nervure is received shortly before the transverse basal. The anterior legs are pale yellow ; the middle pair are darker, with a more fulvous hue ; the tarsi fuscous ; the hinder coxae black ; the apex broadly behind, more narrowly on the outer side, pale-yellow ; the trochanters black ; the femora and tibiae dark rufous, the apex and base of the femora above and the apex of the tibiae, broadly, blackish ; the tarsi white, the basal two-thirds of the metatarsus and the apical joint black. Abdomen smooth, shining ; the petiole black, the sides and apex pale yellow ; the other segments black, narrowly yellow on the apices ; the centre of the second segment slightly, the third, fourth, and fifth more broadly at the base, and the sixth and seventh almost entirely—only the sides being narrowly black—brownish. The ventral surface whitish yellow, the apical segments brownish ; the ventral fold is distinct.

#### LEPTOCRYPTUS, *gen. nov.*

Resembles *Ceratocryptus* in the form of the body and wings, but it wants the frontal tubercles ; the apical mandibular tooth is longer and sharper ; the prothorax above is more widely and deeply depressed, or incised in the middle ; the metathoracic spiracles are oval, not linear ; the spiracles on the petiole are placed shortly behind the middle, not, as in *Ceratocryptus*, between the middle and the apex ; and the ovipositor originates from the ventral

end of the segment, as in *Cryptus*, not from its apex and turned upwards as in *Ceratocryptus* and *Pimpla*. Further differences are to be found in its smooth, not striated, median segment, and in the presence of a stout spine on the sides of the mesosternum.

Head dilated below the antennæ, the clypeus separated from the face by a narrow suture. Mandibles with one long, sharp, apical tooth. Occiput not margined. Palpi long, the joints not dilated. Mesonotum trilobate; metathorax large, smooth, nearly as long as the mesothorax; has a gradually rounded slope to the apex, and has one transverse keel; the spiracles are twice longer than broad, rounded at base and apex. Abdomen long and narrow, nearly twice the length of the head and thorax united; petiole long, narrow, not much dilated towards the apex; the spiracles are small, round, and situated near the middle; the gastrocceli are elongate, narrow. Legs long and slender, the fore tarsi are more than twice the length of the tibiæ, and are incised at the base. Areolet minute, the outer nervure faint; the recurrent nervure is bullated in the middle, and is received shortly beyond the middle of the areolet.

LEPTOCRYPTUS LONGIVENTRIS, *sp. nov.*

*Niger; late albo-maculatus; pedibus fulvis, apice dimidio apicali tibiarum posticarum nigro; tarsis posticis albis, basi nigro.* ♀.

Long. 9; terebra 1 mm.

Antennæ black; the scape rufous beneath; the flagellum to the middle thickly covered with short, black hair; the apical part broken off. Head yellowish-white; the middle of the front and vertex and the occiput, except at the orbits, black. Face smooth, shining and

impunctate, sparsely covered with short fuscous hair ; the face broadly projecting in the middle, the dilated part bordered on the lower two-thirds by a wide furrow ; the furrow at the base of the clypeus narrow ; the apex of the clypeus has an oblique slope ; the mandibular teeth are black. Thorax black, smooth ; the edge of the pronotum (except at the base), the scutellum, post-scutellum, the apex of the median segment, a broad band down its middle extending from the transverse keel to the transverse apical band, the lower side of the propleuræ, this band being united to the one at the top by a short perpendicular one, the apex of the mesopleuræ, a broad band on the apical two-thirds on the lower side, the upper part of the metapleuræ, and a band on the apex of the mesosternum, yellow. Mesonotum shining, covered with a short down ; the depression at the base of the scutellum is deep and wide ; the scutellum rounded and slightly narrowed at the apex where there is a curved, moderately stout keel between it and the post-scutellum, which is slightly curved inwardly at the apex and has a slight oblique slope. Median segment smooth, shining, with only a few shallow minute punctures visible on the black parts at the sides ; behind the keel sparsely covered with short white hair. The propleuræ almost impunctate ; the meso- and metapleuræ closely punctured ; the furrow on the apex of the propleuræ crenulate ; the furrow on the lower side of the mesopleuræ curved, deep at the base, shallower and wider at the apex. The base of the mesosternum is oblique, smooth, and shining ; its sides in the middle, armed with a large, somewhat triangular tooth ; the central furrow at the base is narrow ; on the rest wider and becoming much wider towards the apex, where it is bounded by a stout transverse partition. Wings short, clear hyaline ; abdomen : a spot in the middle of the

second, and the other segments broadly testaceous ; the testaceous colour more extended on the apical ones.

ETHA, *gen. nov.*

Arolet quadrangular, large ; below scarcely angled ; the transverse cubital nervures parallel ; the recurrent nervure received in the middle ; the third discoidal cellule elongate, its base two-thirds of the width of the apex ; arched above ; the cubital nervure in its middle with a short branch. Antennæ longish, slightly thickened beyond the middle ; the first joint of the flagellum distinctly longer than the second. Eyes large, parallel, not reaching to the base of the mandibles. Mandibles stout, with two large, triangular, equal teeth on the apex ; the second joint of the maxillary palpi dilated. Parapsidal furrows distinct. Median segment large ; its spiracles linear ; there are two transverse keels. Petiole narrow, curved, not much dilated towards the apex ; its spiracles small, round, and placed near the base of the apical third ; the second and third segments become gradually dilated towards their apices ; the other segments become gradually narrowed. Legs longish ; the anterior slightly curved ; the tarsi twice the length of the tibiæ, incised at the base ; the penultimate joint largely projecting at the apex beneath, the projection ending in some stout spines ; the hinder tarsi spinose, the penultimate joint ending, on each side, in a bunch of long stiff spines ; the claws dilated at the base ; their apex simple.

The affinities of this genus are clearly with *Ospyrnchotus*, from which it may be known by the less elongated face, by the shorter bidentate mandibles, by the larger, more quadrate arolet, much longer third discoidal cellule, through the cubital nervure originating nearer the transverse basal, by the stouter, less elongated petiole ;

the antennæ are more slender and longer ; the fore tarsi longer compared with the tibiæ, with the base of the tarsi more sharply incised ; the head is more sharply oblique behind the eyes ; the clypeus roundly convex, with the apex oblique ; the labrum shorter than the clypeus, its apex bluntly rounded, and the fore tibiæ are distinctly narrowed at the base.

This genus also comes near to *Ceratocryptus* described in this paper, it having the same form of thorax and abdomen, but differs in the much larger areolet, in the smooth median segment, which has the spiracles less elongated, in the shorter petiole, which has not the post-petiole so distinctly narrowed from the rest of it ; the antennæ are more slender, with the third joint longer compared with the fourth ; the metathorax is shorter and more rounded at the apex. The transverse median nervure is interstitial. The species have a considerable resemblance to *Heterocryptus*, which may be distinguished by the smaller, round metathoracic spiracles.

#### ETHA STRIATIFRONS, sp. nov.

*Nigra; annulo antennarum, ore, linea pronoti, scutello,  
apicque metanoti late flavis; pedibus pallide fulvis; alis  
hyalinis, stigmate testaceo.* ♀.

Long. 15 ; tenebra 4 mm.

Antennæ not quite so long as the body ; filiform, slightly shorter than the body ; the scape beneath and the seventh to twelfth joints white. Head black ; the face, clypeus (except the apex), labrum, mandibles (except the teeth), the upper inner orbits narrowly, and the lower outer broadly, yellow. The face obscurely striated ; the front, except near the antennæ, irregularly striated, somewhat obliquely above, transversely below, the vertex

shagreened, finely and closely punctured between the ocelli. Thorax black; a line on the pronotum, roundly narrowed on the lower side, at the base and more broadly in the middle, the tegulæ, tubercles, scutellum, a mark on the sides of the median segment at the base and the oblique apex, yellow. Mesonotum closely and finely punctured, obscurely transversely striated near the furrows at the base where there is a small yellow mark on the inner side of the outer lobes; the scutellum black and punctured at the base; its basal depressions large, smooth and marked with a few keels; post-scutellum shining, its base striated in the middle. Median segment closely striated behind the keel; the rest strongly transversely striated and thickly covered with long, white hair. Propleuræ irregularly and rather strongly striated, the top and bottom more finely and punctured. Mesopleuræ finely rugose, the apex longitudinally striated, coarsely above, more closely and finely below. Metapleuræ closely and almost uniformly punctured; all the pleuræ thickly covered with short, white hair. Mesosternum shining, closely punctured; its apex obliquely depressed; the central furrow wide and stoutly crenulated. The four anterior legs are uniformly pale fulvous-yellow; the hinder are deeper in tint; the coxæ are broadly black on the outer side; the trochanters are black above; the femora are infuscated on the top, as is also the apex of the tibiæ; the tarsi are pallid-yellow, black at the base and apex, spinose, the bunches of spines on the penultimate joint long and thick. Wings hyaline, iridescent; the stigma obscure testaceous, the costa and nervures blackish; the transverse median nervure is received shortly in front of the transverse basal and is curved; the areolet is almost square; the transverse cubital nervures straight, parallel; the recurrent nervure is

received in the middle. Abdomen black; the sides and apices of the segments and the ventral surface yellowish.

ETHA LEVIFRONS, *sp. nov.*

Long. 15; terebra 5 mm. ♀.

Agrees closely in form, size, and coloration, with *E. stratifrons*; may be known from it by the front being smooth, not striated, by the mesonotum being alutaceous, not punctured, by the pronotum being entirely black, by the scutellum being more widely yellow, the oblique base only being black, and by the apex of the median segment being not so strongly punctured, being almost smooth, and it bears distinct teeth on the sides.

Head black; the face, clypeus, labrum, mandibles, palpi, a large mark, triangularly narrowed on the lower side, on the inner orbits above, and the lower orbits on the outer side, yellow; the front and vertex have a plumbeous hue, and are smooth and shining; the front is depressed in the middle; the lower ocellus is surrounded by a deep furrow; the inner orbits are sharply margined. The face is closely punctured, thickly covered with white hair; the clypeus is sparsely punctured. Thorax black, with a distinct plumbeous hue that is less distinct on the mesonotum, which is dull in tint and thickly covered with short, pale pubescence; the furrows distinct, smooth. Scutellum yellow, except at the base, and covered with longish pale hair; post-scutellum smooth, yellow, black and largely bifoveate at the base; the lateral depression strongly striated at the apex. The basal region of the median segment smooth; the basal transverse keel is narrowly bent backwards in the middle; the second is more broadly bent backwards; between the two keels on either side of the middle are some transverse keels which become gradually longer; the second keel becomes raised

and plate-like at the sides ; the segment is thickly covered with longish pale hair. The pleuræ are smooth ; the apex of the propleuræ is furrowed ; the base of the mesopleuræ is depressed on the lower side, irregularly, stoutly striated and keeled behind ; the middle is obliquely depressed and bears a few keels ; the metapleuræ smooth, except for some short striae below the upper curved keel. The wings have a faint fulvous tint ; the stigma is testaceous ; the areolet is large, almost square ; the transverse cubital nervures are parallel ; the recurrent nervure is received in the middle ; the second transverse cubital nervure is faint ; the recurrent nervure is largely bullated in the middle. The legs are dull fulvous ; the four anterior coxæ and trochanters are paler ; the hinder coxæ are black, except at the base above ; the femora above, the apex of the tibiæ broadly, and the base of the tarsi are black ; the rest of the tarsi white. Abdomen black above ; the apices of all the segments narrowly yellow.

#### ETHA PLUMBEA, sp. nov.

*Plumbea* ; facie, ore, apiceque metanoti flavis ; pedibus flavis, coxis posticis, femoribus supra, tibiis basique tarsorum posticorum nigris ; alis hyalinis, stigmate nigro. ♂.

Long. 10 mm.

Antennæ black, annulated with white beyond the middle ; the scape dirty testaceous beneath ; the flagellum thickly covered with short, stiff hair. Head black ; the face, clypeus, the lower inner orbits, a line on them above the antennæ, and the lower orbits on the outer side, yellow ; the face and clypeus thickly covered with short, white hair ; the clypeus roundly dilated in the middle ; the raised part bordered by a blackish line. The front and vertex are very smooth and shining ; the front is widely furrowed below the ocelli. Thorax smooth and

shining, almost glabrous; the metanotum sparsely covered with white hair; the scutellum is broadly yellow in the middle; post-scutellum yellow; the two foveæ at its base deep. The curved furrow on the side of the mesosternum is wide, deep, and obscurely crenulated; the mesosternal furrow is smooth. Over the four hinder coxæ is a narrow curved keel. The stigma and apical nervures are fuscous; the second transverse cubital nervure is faint. The two front legs are entirely pallid yellow, as are also the middle pair, but the femora and tibiæ are darker above; the middle tarsi are black; the hind legs are black above; the tibiæ black all round towards the apex; the tarsi white; the basal half of the metatarsus black. Abdomen black, shining; the second and following segments narrowly lined with white. The white mark on the apex of the metanotum does not extend to the middle of the segment, and is square at the base, with the sides dilated.

Characteristic of this species are the black, immaculate pleuræ and petiole.

#### *ETHA FUSCIVENTRIS, sp. nov.*

*Nigra; flavo-maculata; apice metanoti late maculisque pleuralis flavis; pedibus sordide fulvis, posticis fusco-maculatis, tarsis albis; alis hyalinis, stigmate testaceo.* ♀.

Long. 12; terebra 3 mm.

Antennæ black; the scape and the base of the flagellum dirty testaceous; the seventh to thirteenth joints clear white; head black; the face, clypeus, labrum, mandibles (except their teeth), palpi, the inner orbits narrowly from the front ocellus to the base of the antennæ, and the outer orbits broadly on the lower half, yellow. The face punctured, strongly and more closely on the middle, which is roundly projecting; the clypeus

almost impunctate ; the large labrum (which is rounded at the apex) dull rufous (perhaps discoloured). The base of the mandibles yellow, the middle rufous, the teeth black; the front and vertex smooth and impunctate. Thorax black, with a plumbeous hue; a line on the middle of the pronotum, the tegulae, a mark on the apex of the middle lobe, the scutellum, post-scutellum, the apex of the median segment broadly (the mark broadly dilated backwards in the middle and to a less extent on the sides), the base of the propleurae, a mark immediately under the hind wings, a larger mark on the lower side of the mesopleurae (oblique at base and apex and slightly narrowed on the top and bottom in the middle), a smaller mark above this (roundly curved and narrowed towards the apex above), a larger mark of almost equal width behind this, and a large oblique mark, slightly and gradually narrowed towards the apex in the middle of the metapleurae, yellow. Mesonotum impunctate, covered with a short pale down ; the furrows smooth, deep ; the base of the scutellum is black ; the black part of the metanotum has a distinct plumbeous hue ; the two transverse keels are distinct and curved backwards in the middle ; the segment is covered with long pale hair. Pleurae impunctate ; behind the basal keel on the mesopleurae are some short keels ; shortly behind the middle is a belt of striations ; the apex is stoutly crenulated, as is also the apex of the metapleurae ; on the depression on the base of the latter at the top are two narrow keels. Mesopleurae very smooth and shining, the furrow crenulated. Wings hyaline, with a slight fulvous tinge ; the stigma fuscous, paler in the middle ; the nervures fuscous ; the areolet almost square, receiving the recurrent nervure in the middle, where the cubital nervure is slightly angled in the middle ; the second transverse cubital nervure is faint ; the transverse

median nervure is interstitial. Legs obscure fulvous ; the four anterior coxae and trochanters are yellow ; the hinder coxae are darker and are broadly black on the outer side, more narrowly at the base, the mark being narrowed on the upper side at the base ; the femora are infuscated above ; the apex of the tibiae broadly black ; the tarsi white, black at the base, and thickly spinose. Abdomen black, shining, the apices of the segments yellow.

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The following species agrees with the other species of *Etha* in all respects, except that the areolet is smaller, it being almost square, with the second transverse cubital nervure faint ; the recurrent nervure is received shortly behind the middle : the basal abscissa of the radius is straight, oblique ; the apical has a slight, rounded curve upwards ; the sub-discoidal nervure is received shortly, but distinctly, above the middle of the discoidal ; on the base of the median segment in the centre is a small triangular depression ; the second transverse keel is indistinct in the middle and ends in a short, triangular projection.

*Etha testaceipes, sp. nov.*

*Nigra ; facie, ore, apice scutelli, post-scutelloque pallide flavis ; pedibus flavo-testaceis ; coxis, femoribus tibiisque posticis nigro-maculatis ; tarsis posticis albis, basi nigro ; alis hyalinis, stigmate testaceo. ♀.*

Long. 12 mm.

Antennæ black ; the eighth to twelfth joints white below ; the scape shagreened, aciculate, almost bare, testaceous in the middle ; the flagellum bare, slightly thickened from the middle. Head black ; the face closely

punctured ; broadly projecting in the middle ; the projection depressed in the middle above ; the face is covered with a short, sparse, white pubescence ; the clypeus is roundly convex, smooth ; surrounding it on the top is a black line ; its apex has a narrow, but distinct, border. Mandibles and palpi pallid yellow ; the mandibular teeth deep black ; the inner orbits are narrowly yellow to near the front ocellus ; there is a narrow line on them near the top of the eyes, and the outer orbits are somewhat more broadly yellow on the lower half. Thorax black, opaque, the sides and apex of the scutellum, the post-scutellum, the lower side of the propleuræ, and the tubercles, yellow. Mesonotum opaque, granular ; the parapsidal furrows are distinct to near the apex ; the scutellum is more shining and smoother. Median segment closely, rugosely punctured, more finely and closely at the base, where, next to the keel, it is obscurely striated ; in the centre are two oblique keels, forming an enclosed area ; the central and apical parts are thickly covered with short, white pubescence ; the lateral spines are distinct, and bluntly triangular. The upper part of the propleuræ and the apical, more particularly in the middle, are stoutly striated, the upper part strongly aciculated, the base smooth. Mesopleuræ opaque, coarsely aciculated ; the apical part finely striated ; the lower furrow is wide and stoutly striated. Metapleuræ closely, rugosely punctured, the punctuation running into striations towards the apex. Mesosternum shining, aciculated ; the central furrow crenulated. Legs pale fulvous ; the anterior coxæ and trochanters pallid yellow ; the middle coxæ infuscated, the anterior broadly black in the middle behind ; the hinder femora are lined with black above ; the apex of the tibiae and the base of the tarsi are black ; the remainder of the tarsi white ; the

hind tibiæ and tarsi are distinctly spined. Wings hyaline ; the nervures fuscous ; the stigma pallid on the lower side ; the areolet is square ; the second transverse cubital nervure is faint ; the recurrent nervure is received shortly beyond the middle, and is largely bullated in the centre ; the transverse median nervure is received shortly behind the basal. Petiole shining and smooth ; the dilated part depressed in the middle above ; the other segments are more opaque, obscure testaceous at the apex ; the gastrocœli are shallow, testaceous at the apex, the base with a shining, smooth keel.



The following two species agree with the foregoing in incuration and in the form of the spiracles ; but differ in having the metathorax closely, distinctly, and finely rugose. In *E. dentata* the median segment is depressed in the middle and armed with two teeth ; there is one transverse keel on it ; the parapsidal furrows are distinct ; the apex of the abdomen is white ; the tarsi spinose.

○  
ETHA DENTATA, *sp. nov.*

*Nigra ; linea pronoti maculaque medio scutelli flavis ; alis hyalinis, stigmate fusco.* ♂.

Long. 9 mm.

Antennæ black ; the scape below, and the middle of the flagellum broadly, except above, white. Head black ; the eye orbits all round, narrowly on the top on the outer side, the antennal tubercles and a mark on the face, broadest below, the clypeus, base of mandibles, labrum and palpi, yellow. The face and clypeus closely and uniformly punctured, and thickly covered with short white pubescence. The front and vertex closely and finely rugosely punctured, the front closely transversely below,

and narrowly above on either side of the keel; the front slightly depressed in the middle, which has a narrow but distinct keel. Mandibles black, their base testaceous above and below. Thorax black; a narrow line on the pronotum, the lower edge of the propleuræ, a mark, narrowed at base and apex, and longer than broad on the middle of the scutellum, yellow. Mesonotum opaque, but not punctured; the parapsidal furrows transversely striated; the scutellum closely distinctly punctured; its basal depression wide and deep, and stoutly longitudinally striated; the space at its sides and at the sides of the post-scutellum coarsely striated. The median segment at the base behind the transverse keel opaque, granular; the central area closely and finely rugose; the rest of the segment finely rugose; the base closely, but not very distinctly, obliquely striated; the second transverse keel is indistinct; the spines are about three times longer than broad, and rounded at the apex. Propleuræ covered with stout, slightly curved, striations, except at the top and bottom. Mesopleuræ closely rugosely punctured, the punctures running into reticulations in the middle; the metapleuræ closely obliquely striated, the striæ stronger and more distinct at the base. Mesosternum strongly aciculated; the central furrow widely, triangularly enlarged at the apex; the lateral furrow curved, deep and striated at the base; its apical part shallow, indistinct except at the end. Legs dark ferruginous; the coxæ and trochanters black, except the anterior at the apex; the hinder tarsi spinose, yellowish-white; the basal two-thirds of the metatarsus black. Arolet slightly longer than broad, of equal width throughout; the second transverse cubital nervure faint; the recurrent nervure is received in the middle. The middle segments of the abdomen rufous at the apices.

ETHA RUFO-FEMORATA, *sp. nov.* ♂

*Nigra; tibiis tarsisque anterioribus testaceis; femoribus posticis rufis; tarsi posticis late albo annulato; alis hyalinis, stigmate fusco.* ♂.

Long. 9 mm.

Antennæ entirely black, thickly covered with a short black pile. Head black, thickly covered with short, white pubescence; a mark on the mandibles before the teeth above and the palpi white. Face and clypeus opaque, finely and closely punctured; the vertex somewhat more coarsely punctured; there is a thin keel below the ocelli. Thorax black; a conical mark (the broad end at the apex) on the apex of the scutellum, and the post-scutellum, yellow. Mesonotum closely punctured, thickly covered with short, pale pubescence; the parapsidal furrows wide and deep at the base, and stoutly transversely striated. Scutellum shining, the punctures, especially at the base, not quite so close together as on the mesonotum; its basal depression wide and deep, and with two keels in the middle. Median segment at the base closely punctured; the rest of the segment more coarsely and rugosely punctured; in the middle at the base are two oblique keels. Propleuræ strongly, obliquely striated; the upper part in the middle coarsely punctured; the base coarsely aciculated. Meso- and metanotum coarsely rugose, opaque. Mesosternum closely punctured; the central furrow shallow, wide. Legs black; the apices of the anterior femora, the tibiæ and tarsi testaceous, those of the middle legs darker in tint; the hinder femora ferruginous, except at the extreme apex; the extreme base of the tibiæ, and the second to fourth joints of the tarsi, yellowish-white. Areolet large, almost square; the second transverse cubital nervure is faint; the recurrent nervure is received in the middle; the stigma and

nervures are fuscous. Petiole aciculated; an oval, transverse yellow mark on its apex, the apex of the second segment and of the third more narrowly, fulvous; the last segment largely white.

DAGATHIA, *gen. nov.*

Areole large, longer than broad; the transverse cubital nervures straight, parallel; the radial cellule elongate; the transverse median nervure is received behind the transverse basal. Antennæ stout, the joints elongate. Eyes large, parallel. Clypeus with a distinct margin, which is slightly dilated laterally. Occiput sharply margined. Parapsidal furrows distinct. Median segment with two transverse keels; the spiracles elongate. Petiole elongate; the apical half dilated, curved; the spiracles placed near the base of the dilated part. Legs stout; the anterior tibiæ distinctly narrowed at the base; the tarsi twice their length; the hinder tarsi spinose; the fourth joint with a bunch of stiff, stout spines on the apex.

This genus comes nearest to *Etha*, but may be known from it by the rugose, not smooth, median segment, by the post-petiole being distinctly separated and defined, by the scutellum being broader than long, and by the transverse median nervure being received behind the basal.

DAGATHIA BRUNNEA, *sp. nov.*

*Brunnea*; *flavo nigroque maculata*; *pedibus pallide flavis*, *apicibus femorum tarsorumque posticorum nigris*; *tarsis posticis albis*; *alis hyalinis*, *stigmate fusco*. ♀.

Long. 14 mm.

Antennæ black; the middle of the flagellum with a broad whitish-yellow band; the scape punctured, sparsely

covered with short, white hair. Head yellow, the front, vertex, and occiput broadly in the middle, black ; the face is sparsely covered with short, white hair ; its middle is rough ; the front and vertex closely rugose ; the former most strongly and furrowed down the middle. Mandibles yellow, the teeth black. Thorax dark rufous ; the base of the mesonotum, a line in the centre of the middle lobe, its apex entirely, the apex of the scutellum, a spot in the middle of the median segment, the greater part of the propleuræ, the base and apex of the mesopleuræ narrowly, its lower part broadly, the base of the metapleuræ broadly and the mesosternum, black. The middle of the pronotum, the tubercles, the sides of the scutellum (except at the apex), the apex of the median segment, the tubercles, a large and a smaller mark on the apex of the mesopleuræ, a mark under the hinder wings, and an oblique mark on the apex of the metapleuræ in the middle, yellow. The mesonotum is granular ; the median segment is closely rugose behind the first transverse keel ; the rest of it much more strongly rugosely punctured, running into striations on the sides ; the second transverse keel is narrow and curved backwards in the middle ; the sides are expanded. Pleuræ closely punctured ; the middle and lower part of the apex of the propleuræ stoutly striated ; the apex of the mesopleuræ finely and irregularly striated ; the furrow on the lower edge wide and striated. The four front legs are pallid yellowish-fulvous ; the apex of the front and the middle tarsi entirely, black ; the hinder coxæ are broadly black on the outer side and to a less extent on the inner side at the apex ; the femora are broadly black above ; the apical fourth entirely, the apical third of the tibiæ, and the apex of the tarsi, black. Wings hyaline, with a slight fulvous tinge ; the basal abscissa of the radius straight ; the apical

curved upwards at the base; the areolet is longer than broad; the nervures parallel; the recurrent nervure is received near the apical third; the transverse median behind the basal. Abdomen dark brown; the petiole black, with a yellow mark in the middle at the apex; the dilated apex of the petiole is strongly and closely punctured.

AGLAOCRYPTUS, *gen. nov.*

Metathoracic spiracles round, small. Antennæ annulated with white, longer than the body, not tapering towards the apex; the third joint a little longer than the fourth. Eyes large, distinctly distant from the base of the mandibles. Clypeus rounded at the apex; the labrum projecting distinctly in the middle, and broadly rounded. Mandibles large, and with two equal teeth at the apex. Parapsidal furrows distinct. Scutellum roundly convex and not carinate. Median segment opaque, finely and closely rugose; it has two transverse keels. Areolet converging at the top; the second transverse cubital nervure is faint; the transverse basal nervure is interstitial. Petiole curved, not much dilated towards the apex; the spiracles are placed shortly beyond the middle.

AGLAOCRYPTUS CURVIMACULATUS, *sp. nov.*

*Niger; late flavo-maculatus; apice metanoti flavo; pedibus rufis; coxis trochanteribusque anterioribus pallide flavis; alis hyalinis, nervis stigmateque pallide flavis.* ♀.

Long. 9; terebra 3 mm.

Antennæ slightly thickened towards the apex; the middle of the flagellum and the under side of the scape white. The face (except a small triangular mark under the antennæ), and two small marks on the sides above

the clypeus, the clypeus, labrum, a mark on the base of the mandibles, the palpi and the orbits, yellow. The face and clypeus smooth, impunctate and covered with short white pubescence ; the front finely and closely obliquely striated on either side of the middle, which has no keel or furrow. Mandibles finely and closely striated. Mesonotum strongly and closely shagreened ; the parapsidal furrows transversely striated. Scutellum closely punctured, thickly covered with short, fuscous hair ; the post-scutellum impunctate ; both are lemon yellow ; the lateral depressions strongly striated. The basal region of the median segment strongly aciculated, opaque ; the rest closely punctured ; the sides at the base longitudinally striated ; the basal transverse keel is distinct ; the second only distinct at the sides ; the spines are broad and not much raised. Except for a spot in the middle at the apex, the apical part of the median segment is yellow ; the yellow at the base being dilated backwards in the middle ; there is a yellow line on the pronotum, a broader one on the underside of the propleuræ, the tubercles, the greater part of the lower half of the mesopleuræ, the latter mark broadly turned upwards at the base, the lower part of the turned-up part roundly incised on the lower side at the apex ; an elongated mark on the median segment on the sides behind the wings, this mark being rounded at the base, and a large, somewhat conical mark on the middle of the metapleuræ, lemon-yellow. Legs rufous, the four anterior coxæ and trochanters and the hinder coxæ at the middle behind, yellow ; the apex of the hinder tibiæ, the basal half of the metatarsus and the apical joint, black ; the rest of the tarsi white. Wings clear hyaline, slightly narrowed at the top, where it is about one half the length of the bottom ; the second transverse cubital nervure is faint, but clearly defined ; the recurrent

nervure is received very shortly before the middle. Abdomen black; the apex of the segments broadly pale yellow; the two last segments entirely so.

AGLAOCRYPTUS STRIATIFRONS, sp. nov.

*Niger, flavomaculatus; linea late medio metanoti flava; pedibus rufis; coxis trochanteribusque anterioribus flavis; alis hyalinis, stigmate testaceo.* ♀.

Long. 10 mm.; terebra 3 mm.

Antennæ black; the scape, the apex of the sixth and the seventh to the twelfth joints beneath, white. Head black; the orbits (the outer more narrowly than the inner), a large mark on the face, narrowed roundly on the lower side, immediately under the antennæ, the clypeus, the mandibles (except at the apex), and the palpi, pallid yellow. The face in the middle is closely and distinctly punctured and sparsely covered with short, white hair; the front is keeled down the middle, the sides closely transversely striated; the vertex in the middle closely punctured. Thorax black; a line on the pronotum, the scutellum, post-scutellum, the tubercles, a broad line on the middle of the median segment, squarely turned up at the top and at the sides including the broad spines; the lower edge of the propleuræ broadly; the tegulæ, tubercles, a somewhat oblong mark immediately under the hind wings; a mark longer than broad, on the lower side of the mesopleuræ at the base, a longer perpendicular mark on the apex, and a large, elongate mark on the middle of the metapleuræ, yellow. Mesonotum closely punctured, finely striated on either side of the furrows; the base of the median segment behind the keel finely rugose; the rest of the segment much more strongly and closely, rugosely punctured; in front of the middle of the transverse keel are some longitudinal striations; there is also a row of short keels at

the apex. Propleuræ strongly obliquely striated above ; the base is smooth. Mesopleuræ closely rugose, irregularly striated ; the metapleuræ finely rugose, striated towards the apex. Mesosternum shining, closely punctured ; the central furrow deep, marked with some keels on the oblique apex. Legs rufous ; the four anterior coxæ and trochanters pallid yellow ; the hinder coxæ marked with yellow on the base above ; the apex of the hinder femora, the base of the tarsi more narrowly and their apical joint, black ; the rest of the tarsi white. The apices of all the abdominal segments are yellow ; the basal two with the yellow bands slightly larger.

A larger and stouter species than *A. curvinaculatus* ; may be known from it by the marks on the mesopleuræ being separated, not united, by the yellow mark on the median segment being narrower, by the front being much more strongly striated and by the apical two segments of the abdomen not being entirely yellow.

#### CHLOROCRYPTUS, *gen. nov.*

Antennæ stout, slightly dilated and compressed beyond the middle. Eyes parallel, distinctly separated from the base of the mandibles. Clypeus roundly convex, not separated from the face by suture. Mandibles with two subequal teeth on the apex ; the second joint of the maxillary palpus dilated compared to the others. Mesonotum trilobate at the base. Scutellum rather flat. Median segment coarsely transversely striated all over, without areæ or prominent keels ; the spiracles linear, elongated, rounded at the base and apex. Apical third of the petiole distinctly dilated, slightly curved, the spiracles small, round, placed near the base of the post-petiole. Ovipositor projecting. Legs long and slender, the tarsi spinose at the apices of the joints, the claws simple, the fore tarsi

twice the length of the tibiæ. Arolet small, square, complete; receiving the recurrent nervure at the apex; the transverse median nervure almost interstitial; the third discoidal cellule is much narrowed at the base; the cubital nervure curved.

This genus does not fit well into any of the tribes into which Thomson divides the *Cryptidæ*, but comes nearest the *Cryptina*, from which it differs in the median segment having no keels but being strongly transversely striated all over. It has the small areolet of *Mesostenus* and, like it, receives the recurrent nervure in the apex; the transverse basal nervure is straight, oblique, and is almost parallel with the transverse basal for the most part: the costa is narrow, elongate; the parapsidal furrows are obsolete; but the middle of the mesonotum is raised. The antennæ are stouter, especially towards the apex, than in *Cryptus* or *Mesostenus*.

CHLOROCRYPTUS METALLICUS, *sp. nov.*

*Coeruleus; nigro-maculatus; antennis nigris, medio albo-annulato, apice fusca; alis hyalinis, nervis stigmatisque fuscis.* ♀.

Long. 12; terebra 4 mm.

The scape of the antennæ dark metallic green, the five basal joints of the flagellum black; the eighth to thirteenth joints for the greater part white; the apical brownish. The face and base of the clypeus closely punctured, the apex of the clypeus smooth and shining, impunctate and of a lighter green. Mandibles black, their middle dark piceous, the palpi dark fuscous, the second joint for the greater part whitish. Mesonotum black, green in the middle; the sides of the middle lobe with some stout transverse keels; the middle with large, deep, clearly separated punctures; the apex irregularly reticu-

lated in the middle; the lateral lobe smooth in the middle towards apex, which is itself entirely smooth. The scutellar depression deep, wide and smooth. The scutellum is smooth, except for some scattered punctures; the sides behind have stout, slightly oblique, keels, the post-scutellum smooth and impunctate; the depression at its sides with stout keels. Median segment stoutly uniformly and closely transversely striated. Pro- and mesopleuræ closely punctured; the lower and posterior part of the former stoutly longitudinally striated; the middle of the latter closely obliquely striated, and with a smooth space behind; the mesosternum laterally bounded by a shallow, slightly oblique, furrow; its central furrow with a few stout transverse keels; the surface shining, closely, but not very strongly, punctured. The metapleuræ strongly, closely and slightly obliquely, striolated. Legs coloured like the thorax, except that the tibiæ and tarsi are darker, almost black and not metallic; the apex of the front femora and the tibiæ fuscous. Petiole shining and bearing scattered punctures; the dilated apex with them more numerous than the base; the second, third, and fourth segments closely punctured, the others almost smooth, the apical black, with a purple tinge.

CHLOROCRYPTUS COERULEUS, *sp. nov.*

*Coeruleus; nigro-maculatus; mesonoto striolato; alis fere hyalinis.*

Long. 18; terebra 5 mm. ♀.

Face dark blue, darker at the sides; the middle roundly concave, depressed in the centre; closely punctured, thickly covered with short, white hair. Mandibles closely and distinctly punctured at the base; dark blue, the apex black and smooth; the palpi blackish, thickly covered with short white hair. The front over the antennæ de-

pressed, smooth, shining, blue, greenish above ; the upper part furrowed down the middle, its lower side with two stout, transverse keels, with an oblique one above them ; above these, laterally, are two or three irregular keels ; the sides are closely punctured ; the vertex is closely punctured, much less strongly laterally. The middle of the mesonotum is closely irregularly punctured ; its apex furrowed in the middle, the furrow with a central keel ; this central part is bordered at the base with irregular keels, which form reticulations ; laterally by two stout keels, which curve obliquely round its apex ; the apex is stoutly irregularly reticulated ; the sides are smooth, except at the tegulae, where they are punctured. Scutellum with widely separated punctures. Post-scutellum smooth, bifoveate at the base. Median segment strongly reticulated at the base ; the middle and apex more closely and regularly reticulated ; the apex has an oblique slope, is slightly hollowed in the middle, bordered above by a keel, which is larger at the sides. Propleuræ strongly obliquely striated, the base on the lower part smooth. The upper and lower apical parts of the mesopleuræ irregularly striated ; the base closely punctured ; the sternal furrow is wide, deep, does not reach much beyond the middle, and bears some stout keels. Mesosternum finely and closely punctured ; its apex oblique and bearing some stout, oblique striæ in the middle. Wings hyaline with fuscous tint, lightly iridescent ; the stigma and nervures are black ; the areolet small, almost square ; the second transverse cubital nervure is largely bullated in the middle ; the recurrent nervure is received in the middle. Legs dark blue ; the tibiæ and tarsi darker, the fore tibiæ and femora dark testaceous in front ; the tarsi closely spinose. Abdomen smooth and shining ; the sides and apex of the petiole closely punctured.

A larger species than *C. metallicus*; may easily be known from it by the median segment being closely reticulated, not transversely striated, by the darker coloured wings with black nervures, and by the distinct projecting keel on the middle of the metanotum.

*CNEMOCRYPTUS, gen. nov.*

Has the median segment areolated, as in the *Hemitelina* and *Phygadneuonina*. From the former it may be known by the second transverse cubital nervure being distinct, by the antennæ being larger and not so stout towards the apex, and the areolet larger and more distinctly square in shape; from the *Phygadneuonina* by the longer and more slender antennæ, by the larger square areolet, which receives the recurrent nervure before the middle, and by the spiracles on the petiole being received nearer the middle.

Antennæ as long as the body, thickened towards the apex; the basal joints of the flagellum elongate, clypeus large, deeply foveate laterally above, where it is separated from the face by a suture. Mandibles bidentate. Occiput margined. Parapsidal furrows distinct at the base. Median segment completely areolated; the spiracles small, oval. Areolet square, large; not narrowed above; the recurrent nervure received shortly before the middle; the transverse median nervure interstitial; the cubital nervures in the hind wings pellucid. Legs stout, the hinder tarsi annulated with white. Petiole longer than the second segment, not much dilated towards the apex; the spiracles placed shortly beyond the middle; the apical segment white above; the ovipositor exserted.

*CNEMOCRYPTUS VALIDICORNIS, sp. nov.*

*Niger; abdominis apice annuloque antennarum albis; scutello flavo; femoribus, tibiis tarsisque anterioribus*

*testaceis; femoribus posticis rufis; tarsis posticis nigris, late albo annulato; alis hyalinis, stigmate pallide testacco.* ♀.

Long. 8; terebra 2 mm.

Antennæ black; the seventh to eleventh joints white, except above; beyond the seventh slightly, but perceptibly, thickened; the scape with a faint microscopic pile; obscurely punctured. Head with the mandibles entirely black; the palpi pale testaceous, black at the base. Head opaque, aciculated; the face thickly covered with a silvery pubescence; the clypeus shining, sparsely punctured. Thorax black; the mesonotum strongly aciculated; the parapsidal furrows wide and distinct at the base; the scutellum and post-scutellum yellow; the scutellum on the outerside obliquely striated. Median segment finely rugose; the base strongly aciculated; the supramedian area is three times longer than wide, the basal half becoming gradually narrowed towards the apex; the apical half of equal width; the other areæ are distinct; the middle transversely striated. The upper part of the propleuræ strongly aciculated; the lower longitudinally striated; the mesopleuræ strongly aciculated, the middle running into striations; the metapleuræ coarsely aciculated; the upper part behind the spiracles strongly, obliquely striated; the keel on the middle of the metapleuræ stout, curved; the part immediately above it with a row of short keels. The four anterior legs dark testaceous; the coxæ and trochanters black; the hinder femora fulvous; the tarsi testaceous, darker towards the apex, which is itself black; the hinder tarsi white, except the basal and the apical two joints, which are deep black. Wings clear hyaline, the stigma pale testaceous; the nervures pale fuscous; the areolet square; the recurrent nervures received almost in its centre. Abdomen black; the apex of the first and second segment rufous; the apex of the penultimate and the

whole of the last segment white; the apical half of the petiole depressed laterally, the depression forming almost a groove; the second and third segments are pale testaceous.

ODONTOCRYPTUS, *gen. nov.*

Head transverse; the eyes large, projecting in front, not reaching to the base of the mandibles. Clypeus separated from the face; its apex ending in two stout, triangular teeth. Mandibles stoutly bidentate, the upper the larger. Mesonotum with the parapsidal furrows complete. Scutellum flat; its sides at the base stoutly keeled. Median segment completely areolated, and with stout spines; its spiracles small, oval. Petiole longish, dilated, but not abruptly, at the apex; the spiracles small, round. Wings large; the areolet pentangular; the basal nervure interstitial. Legs longish; the hinder tarsi elongate, spinose; the fore tarsi incised at the base; the tibiæ twisted at the apex. Ovipositor exserted. The antennæ in the ♀ are longer than usual; the third and fourth joints are equal in length.

The noteworthy points of this genus are the stoutly bidentate clypeus, stoutly carinate scutellum, unusually long and slender antennæ, distinctly areolated median segment, and small, round, metathoracic spiracles. In form it agrees best with the *Cryptina*, but it differs from that group in the areolated median segment; it comes nearer to *Hemiteles*, but that genus may be known from it, apart from its clypeus not being bidentate, by the incomplete areolet, by the shorter antennæ, &c.

ODONTOCRYPTUS BIDENTATUS, *sp. nov.*

*Niger; late flavo-maculatus; antennis nigris, medio albo annulato; pedibus rufo-tulvis, coxis trochanteribusque*

*anterioribus flavis, coxis posticis nigris; alis hyalinis, stigmate pallido, nervis fuscis.* ♀.

Long. 8 mm.

Antennæ black; the apex of the sixth, and the seventh to tenth joints of the flagellum, white; the scape yellowish beneath. Head black; the face, clypeus broadly at the base, the base of the mandibles broadly and the eye orbits narrowly above, broadly on the outer-side below, yellow; the apex of the clypeus with the teeth, and the teeth of the mandibles, black. The face finely punctured in the middle, closely covered with short pubescence; the palpi yellow. The front and vertex shining, smooth and impunctate; the ocelli are bordered laterally by a furrow. Thorax black, the edge of the pronotum broadly; two narrow lines on the mesonotum placed nearer the apex than the base, the scutellum, post-scutellum, the sides of the median segment below and including the spines, the top of the posterior median area, the base of the prothorax broadly, the tubercles, a large mark on the upper part of the mesopleuræ ending above in a hook-shaped piece, the greater part of the lower side, a small mark on the side of the mesosternum, a small mark under the hinder wing and the greater part of the metapleuræ between the keels, yellow. Mesonotum closely and finely punctured; the scutellum smooth; the basal depression deep, smooth; the keels stout; the keel on the sides of the scutellum extending to shortly beyond the middle. Median segment smooth and shining; all the areæ complete, the keels stout; the basal median area large, obliquely narrowed towards the apex; the supramedian somewhat longer than wide; transverse at the base and apex; the sides obliquely narrowed at the base; the posterior median area rounded at the base; the keels

indistinct towards the middle and apex; the spines are large, broad, rounded at the top. The propleuræ stoutly striated behind; the mesopleuræ above near the middle longitudinally striated; beneath this is a small belt of large, deep punctures, below this again are some stout, longitudinal furrows; the keel over the mesosternum is deep and clearly defined at the base, shallow and broader at the apex, where it is rough and bordered by some stout keels. The mesosternum is largely oblique at the base; the furrow there is wide and crenulated; the sternum is smooth and shining; the keel on the apical part is narrower than on the basal. Legs rufo-fuscous; the four anterior coxæ and trochanters yellow; the hinder coxæ black, yellow at the base above and at the apex below; the hinder tarsi white; the basal half of the metatarsus and the terminal joint, black. Arolet pentangular, narrow, the lower part twice the length of the upper; the lower part angled, receiving the recurrent nervure shortly beyond the middle; the latter is broadly curved and is bullated at the top and bottom; the transverse basal nervure is interstitial. Abdomen black; the apices of the segments banded with yellow; the petiole smooth; the sides above keeled, the keel curving up above the spiracles; the gastrocœli are shallow, indistinct.

ODONTOCRYPTUS SULCATUS, *sp. nov.* ◎

Long. 8 mm. ♂.

Very similar in coloration to *O. filicornis*, but may be easily separated from it by the form of the supramedian area which is longer than broad, while in *O. filicornis* it is broader than long.

Antennæ black to the twelfth joint, the remaining joints being broken off; the scape yellow beneath; the flagellum thickly covered with short, stiff, black pubescence. Head

black ; the face, clypeus, labrum, mandibles (except the teeth), palpi, the inner orbits narrowly above to the end of the eyes, and the lower orbits more broadly, from near the top, yellow ; the apex of the clypeus, with the teeth, black. The face is closely and rather strongly punctured, especially in the middle ; the clypeus more sparsely and finely punctured ; the mandibular teeth deep black. Thorax black ; the prothorax, scutellum (except at the apex), the post-scutellum, the median segment from shortly above the teeth, the mesopleurae (except round the edges), the metapleurae, except at the base—above from the spiracles, and a line on the sides of the mesosternum (not extending to the apex), yellow. The mesonotum is shagreened ; the scutellum is smooth ; the median segment very smooth and shining ; the basal central area is large, obliquely narrowed towards the apex ; the supramedian is longer than broad ; transverse at the base, where its sides are oblique ; the apex is rounded inwardly ; the spines are long, sharp, broad at the base. The propleurae are smooth, except for a band of stout striations on the apex ; the base and apex of the mesopleura crenulated ; in the middle is a shallow, irregularly striated furrow ; on its lower side is a wide and deep furrow which is irregularly and indistinctly striated. Legs pale fulvous ; the coxae and trochanters pallid yellow ; the hinder legs of a darker and deeper fulvous colour ; the coxae yellow, with a large black irregular mark on the apex, above ; the trochanters broadly at the base above, the base and apex of the femora narrowly, the apex of the tibiae more broadly, black ; the tarsi white ; the base and apex blackish. Wings hyaline, iridescent ; the stigma and nervures dark fuscous ; the areolet, at the top, is about one half the length it is at the bottom ; below it is angled where the recurrent nervure is received near the middle ; the second

transverse cubital nervure is fainter than the first. Abdomen black; the apices of the segments pallid yellow; the petiole with two narrow keels on the sides above, the upper not reaching to the apex; the gastrocceli at the base finely and distinctly punctured; the apex on the inner side obscure testaceous.

### HEMITELINA.

#### HEMITELES KHASIANUS, *sp. nov.*

*Niger; prothorace, mesopleuris, mesosterno metathoraceque rufis; pedibus rufis, tibiis tarsisque posticis fuscis; aitis hyalinis, stigmate nervisque fuscis.* ♂.

Long. 6 mm.

Antennæ absent; the front and vertex are smooth and shining; the vertex behind the ocelli thickly covered with fuscous hair; the face opaque, alutaceous, thickly covered with short pale hair; clypeus smooth and shining; mandibles rufous, yellowish in the middle; the palpi pallid yellow. Thorax rufous, smooth and shining; the mesonotum black. Metanotum tinged with yellow in the middle; all the areæ complete; the supramedian is longer than broad, transverse at the base and apex; pleuræ smooth and shining; the oblique furrow on the mesopleuræ is obscurely striated at the base. Wings clear hyaline; the stigma narrowed at the top; triangularly produced on the lower side, where the roundly curved recurrent nervure is received in the middle. The four anterior coxæ and trochanters are pallid yellow; the hinder coxæ marked with black on the outer side; the hinder tibiæ are paler on the inner side. Petiole black, long and slender; the base above smooth; the rest closely, longitudinally striated, more irregularly and strongly at the apex; the second strongly, closely longitudinally punctured; the third less strongly; the others still less

strongly ; all the segments are rufo-testaceous on the apex.

HEMITELES INTERMEDIUS, *sp. nov.*

*Niger; annulo flagello antennarum, orbitis oculorum supra, tegulis scutelloque albis; metathorace petioloque rufis; pedibus rufis; coxis trochanteribusque albis; tibiis tarsisque posticis fuscis; alis hyalinis, stigmate pallido.* ♀.

Long. 8 mm.

Antennæ black ; the middle with a broad white ring. Head black ; the inner orbits above on the inner side white in the middle ; the white bands narrowed at the top and bottom. The face closely punctured ; the clypeus with the punctures much more widely separated ; the mandibles broadly dirty testaceous in the middle ; the palpi white ; the front and vertex closely and uniformly punctured. Thorax with the metathorax entirely rufous, as is also the post-scutellum ; the scutellum yellow : the middle of the mesopleuræ behind obscure rufous. Mesonotum closely and uniformly punctured ; the parapsidal furrows are indicated at the extreme base ; the lateral scutellar depression stoutly keeled. The median segment is distinctly areolated ; the basal central area is large, broader than long ; the supra-median is slightly longer than broad and rounded at the base ; the entire segment is closely and strongly punctured ; the apical areæ closely transversely striated ; there are no teeth. The pro-, meso-, and metapleuræ closely punctured ; the propleuræ striated behind. Mesosternum closely punctured ; the middle furrow deep, of equal width throughout and closely crenulated. The four anterior legs obscure rufo-testaceous ; the coxæ and trochanters white ; the femora are darker ; the hinder coxæ and trochanters are rufous, largely marked with black below and laterally towards the apex ; the

hinder tibiae are broadly black towards the apex; the tarsi black, the joints narrowly testaceous at the base and apex. The areolet is narrowed above; the second transverse cubital and the upper part of the first pale; the recurrent nervure is received in the middle. The petiole rufous; the post-petiole raised in the middle and closely punctured; the second segment black; the sides at the base rufous and closely striated; the apical third obscure yellowish-testaceous; the apical two segments are clear white.

PHYGADNEUON PULCHRIPES, *sp. nov.*

*Nigrum; pedibus abdominisque medio rufis; clypeo, mandibulis palpisque albis; alis hyalinis, nervis stigmataque fuscis.* ♂.

Long. 7 mm.

Antennæ stout, thickly covered with short, microscopic pile, the thirteenth to sixteenth joints white; head black; the clypeus, labrum, the mandibles to near the base of the teeth, and the palpi, white; the face, clypeus, and base of mandibles thickly covered with longish white hair; the face finely and closely punctured; the front and vertex closely and distinctly punctured, and thickly covered with short fuscous hair. Thorax black, except the pronotum above; the mesonotum closely punctured, thickly covered with short fuscous hair; the scutellum is not quite so closely punctured; its sides roughly shagreened. Median segment opaque, coarsely aciculated in the middle, the sides closely, finely rugose; the sides at the apex closely, irregularly striated; the basal areæ not clearly defined through the keels being interrupted, this being also the case with the apical keel.

The pleuræ closely, uniformly punctured, thickly covered (as is also the breast) with short, fuscous pubes-

cence, the lower furrow not clearly crenulated. The coxae are black; the four anterior white at the apex; the four anterior trochanters white; the apex of the hinder tibiae and the tarsi black; the apex of the basal joint and the second, third and fourth joints white; abdomen black; the apex of the petiole and the second and third segments rufous. The areolet is not much narrowed above; the second transverse cubital nervure is faint; the recurrent nervure is received in the middle.

This species has the antennae of *Phygadneuon*, but the second transverse cubital nervure is faint as in *Hemiteles*; the lateral areae are not clearly defined through the keels being indistinct.

JAVRA, *gen. nov.*

♂. Antennae short, not longer than the abdomen, stout, the basal joint of the flagellum not much longer than the second. Head small, narrower than the mesothorax, not much narrowed behind the eyes; the occiput not margined. Eyes large, parallel, not touching the base of the mandibles. The clypeus separated from the face by a suture; its apex bluntly rounded. Mandibles with two large, nearly equal teeth. Palpi slender. Mesonotum with distinct parapsidal furrows. Scutellum large, its apex distinctly narrowed. Median segment with a rather elongated slope; areolated; the basal areae not complete, being open at the base; the spiracles small, roundish. Petiole slender, not much thickened towards the apex; the spiracles are placed in the middle where the segment is tuberculate.

I have unfortunately only a ♂; but its characteristics appear to be sufficiently distinct from *Phygadneuon* by e.g., the smaller head with its occiput not margined, by the more distinct parapsidal furrows, by the more slender

petiole, with its spiracles placed in the middle, by the longer and more slender legs, and by the longer abdomen.

JAVRA PARVICEPS, *sp. nov.*

O

*Nigra; annulo antennarum, facie, ore, mandibulis, palpis,  
tegulis, scutello, post-scutello coxisque anterioribus albis; alis  
hyalinis, stigmate fusco.* ♂.

Long. 8 mm.

Antennae black ; the scape and the fourteenth to twentieth joints white ; the base of the flagellum brownish ; thickly covered with stiff hairs, which are shorter towards the apex. Head black ; the entire face, the clypeus, mandibles (except at the apex), and the palpi, clear white ; the face and clypeus smooth and impunctate, sparsely covered with short white hair ; the rest of the head also smooth and impunctate, almost glabrous. Thorax black ; the base of the prothorax, the scutellum, post-scutellum, tubercles and tegulae, clear white. Mesonotum shining, covered with a microscopic fuscous pubescence ; the parapsidal furrows only distinct on its basal half. Scutellum smooth, covered with short, pale hairs. Median segment thickly covered with longish white hair ; the basal areae with the keels interrupted and consequently they are not defined ; the posterior median area is wide, rounded at the base, slightly narrowed towards the apex. Propleurae smooth, the upper part with a narrow furrow ; the base behind the white line and the apex stoutly striated ; mesonotum smooth, the lower part in the centre with a broad, slightly oblique, striated band ; the lower half of the metapleurae closely and finely punctured. Mesosternum smooth, shining ; thickly covered with short, pale pubescence ; the lateral furrow reaches shortly beyond the middle ; the centre is widely depressed, especially on the

apical half, and has a distinct furrow in the middle. The four anterior legs are bright fulvous, their coxae and femora white; the hinder femora are of a darker fulvous colour, darkened towards the apex; the coxae paler at the base; their apex broadly infuscated; the tibiae blackish, the base pale testaceous; the tarsi white, the basal third of the metatarsus black. The areolet is nearly square; the second transverse cubital nervure is faint; the recurrent nervure is largely bullated in the middle, and is received shortly before the middle. Abdomen black; the base of the petiole broadly, its apex more narrowly, almost the apical halves of the second and third segments, and the apical segments entirely, pale white.

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The following species agrees closely in body form with the preceding, and in the form and position of the spiracles, but it differs in the antennae being much longer (longer than the body), the joints being more elongate; the recurrent nervure is received near the base of the areolet, which is longer. The base of the thorax is not so distinctly raised above the head, which is as wide as the thorax, and the median segment has the areæ much more distinctly defined.

JAVRA LONGICORNIS, *sp. nov.*

*Nigra; facie, clypeo, basi mandibularum late, palpis, tegulis, scutello, maculisque duobus metanoti albis; pedibus anterioribus pallide fulvis; femoribus posticis, apice tibiarum basique tarsorum nigris; alis hyalinis, stigmate fusco.* ♂.

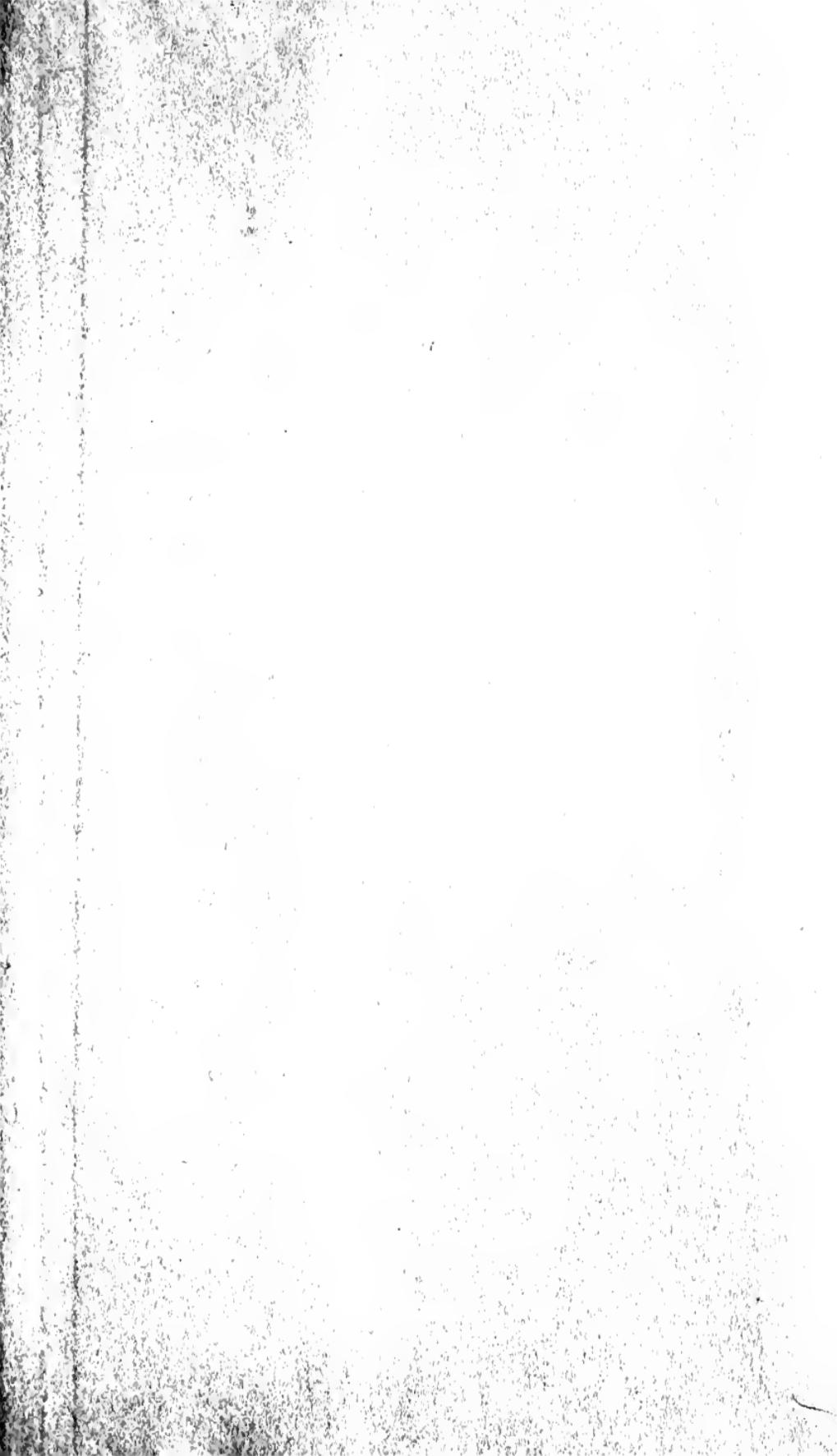
Long. 7 mm.

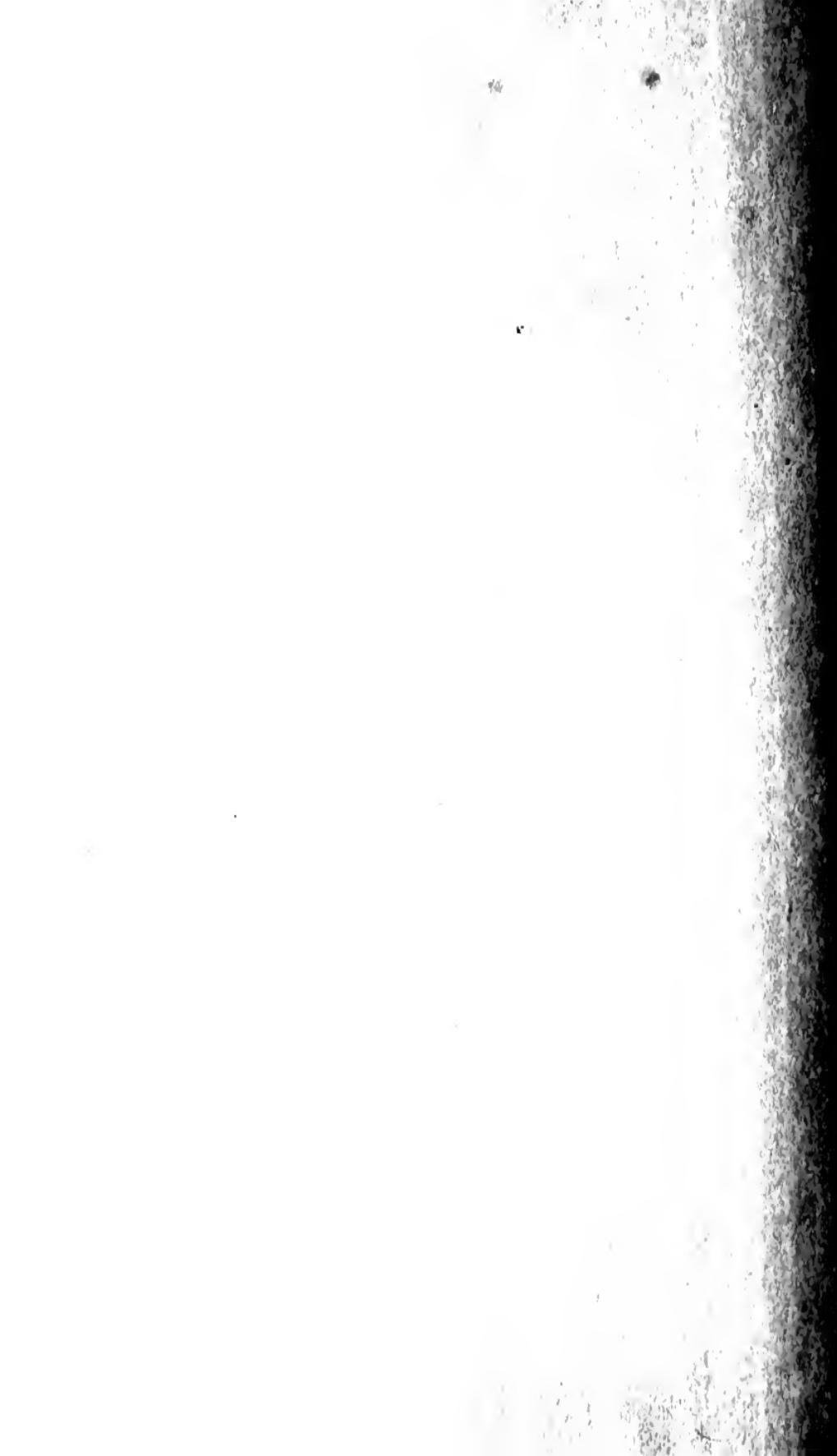
Antennæ filiform, longer than the body; the under side of the scape and a band of eleven joints beyond the middle white; the flagellum densely covered with stiff

microscopic hair. The face, clypeus, labrum, the mandibles (except at the apex), and the palpi, white ; the face and clypeus smooth, sparsely covered with long hair ; the front and vertex smooth, impunctate, glabrous ; on the inner orbits, above the antennæ, is a yellow band, which is narrowed considerably on the lower part. Thorax black, shining ; the tegulæ, tubercles, scutellum, the apex of the post-scutellum, two slightly oblique marks on the apex of the metanotum, longer than broad, and bluntly rounded at the apex, white. Mesonotum minutely punctured ; the parapsidal furrows only defined on the basal half. Scutellum smooth : the basal keels acute, not extending on to it ; the post-scutellum with a distinct depression bordered by oblique keels at its base. On the base of the median segments are two large, curved keels which do not, in the middle, reach to the base of the segment. The supra-median area is almost completely defined ; the posterior median completely so and is bluntly rounded at the top ; the part beyond the large basal areæ is irregularly closely striated. Propleuræ smooth, the apex with a narrow striated belt ; the mesopleuræ finely and closely obliquely striated, smooth above and on the apex ; the metapleuræ coarsely aciculated, smooth at the base above ; the tooth is not very conspicuous, is white and somewhat triangular ; the four anterior legs are pale fulvous ; the coxæ and trochanters are white ; the hinder coxæ and femora are black, their base and the trochanters fulvous ; the tibiæ dark fulvous, the apical third black ; the claws black ; the tarsi white, the basal half of the metatarsus black. Wings clear hyaline ; the stigma fuscous on the lower side ; the arcolet moderately large, very slightly wider on the anterior end ; the recurrent nervure is received near the apex of the basal third. Abdomen black ; the apices of all the segments white ; the gastrocœli shallow, fulvous on the apex.











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